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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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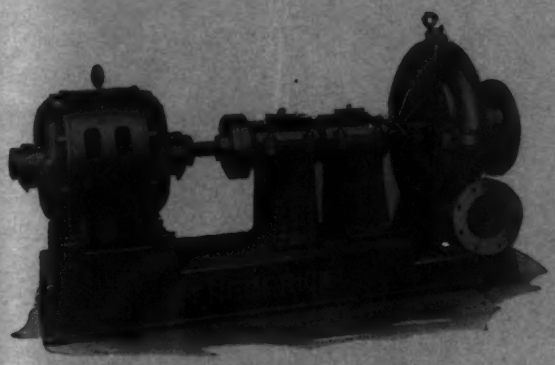

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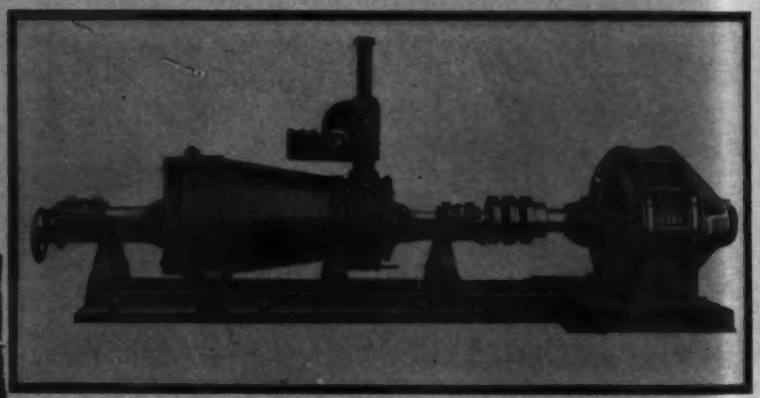

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PAPER TRADE JOURNAL

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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SECOND YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., INC.

LESLIE R PALMER, PRESIDENT — GEO. S MACDONALD, VICE-PRESIDENT & TREAS. — F. K. HOPPIE, SECRETARY

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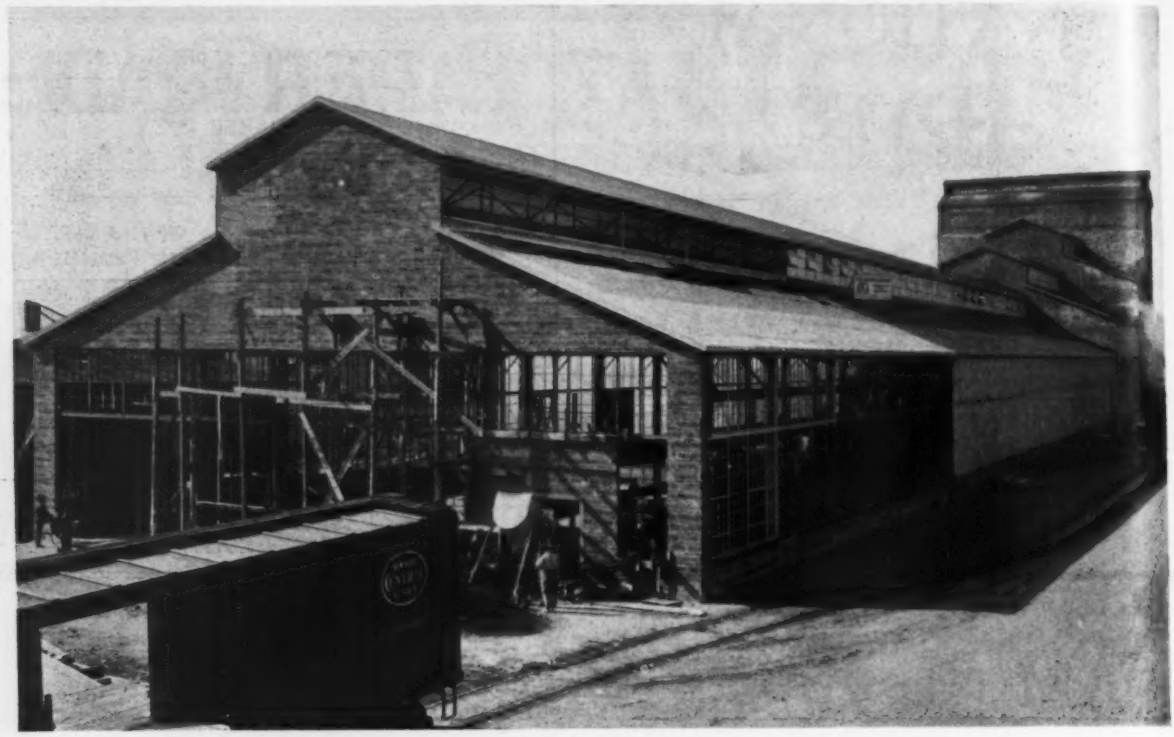

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PAPER TRADE JOURNAL

Vol. LXXVIII No. 16 NEW YORK AND CHICAGO Thursday, April 17, 1924

PROTEST AGAINST CANADIAN EMBARGO

Pulp and Paper Manufacturers of the United States Say They Will Seek New Sources of Wood Supply Rather Than Move Mills to Canada—File Protest with Royal Commission—Say Moving Plants Would Involve Scrapping or Duplicating Large Investments—Premier Taschereau of Quebec Opposed to Measure—Farmers Say It Would Ruin Their Market.

[FROM OUR REGULAR CORRESPONDENT.]

OTTAWA, Ont., April 15, 1924.—A memorandum on behalf of the pulp and paper manufacturers of the United States, asserting that it would be preferable to seek new sources of supply in the United States or abroad than to move the American mills to Canada in the event of an embargo on the exportation of pulpwood, has been filed with the Royal Commission, which is completing its report to the Government on the question.

"The moving of American mills to Canada would either involve the scrapping of large investments in the United States or duplicating a part or all of them in Canada," the memorandum said, adding that "the growth of this industry will be the result of economic laws and not of statute law."

It also pointed out that about 90 per cent of the Dominion's forest area was publicly or crown owned and asserted that from the standpoint of conservatism of forest resources the embargo would seem "absolutely useless" because of restrictions against exporting wood from the public lands.

The proposed embargo would affect only 1.7 per cent of the total lumber cut, the memorandum said, if farmers' and settlers' lands were exempted as provided by an order in council passed last year.

Opposition in Canada

Since the Dominion Government, in June last, appointed a Royal Commission to study the question of a proposed embargo on pulpwood cut from freehold lands a significant change has come over public opinion in regard to the agitation. At the time when the commission was appointed there appeared to be a general feeling that the embargo was needed, and that it would be equally beneficial with the embargo on pulpwood cut on Crown lands, which had been imposed by the various provinces in the form of conditions in the leases for pulpwood cutting. That this embargo had the effect of bringing pulp and paper mills to Canada there can be no doubt, and it was thought that if the embargo were made absolute many of the American mills purchasing supplies of pulpwood from Canada would perforce have to move to Canada.

This was one of the points stressed by those who were concerned in the agitation, but the main argument that was put forward was that the forests of Canada were being rapidly depleted, and that the embargo was absolutely necessary in order to save the forests from destruction. Of course these two arguments in themselves were contradictions, because if American mills were established in Canada to make use of the pulpwood they could not take out of the country, then the cut would not be diminished, and nothing would be done to "save the forests."

At the very outset the proposal for the embargo was complicated by two very important considerations. In the first place, there are numerous farmers and colonists throughout the provinces of Quebec and Ontario who obtain lucrative employment in cutting pulpwood in their wood lots during the winter and selling it for export. They naturally raised strong objections to their market being cut off. In the second place, many American mills had made contracts for the supply of pulpwood for a number of years, and the question arose as to whether the Government could legally quash those contracts. The result was that when he announced the appointment of the commission, Premier Mackenzie King promised that any proposed embargo should not apply to farmers' pulpwood. As regards the other point, the Government passed an Order-in-Council providing that no embargo should be applicable to bona-fide written contracts duly executed and delivered previous to the time of the appointment of the commission on June 1, 1923, provided that contracts did not extend for a period of more than ten years from the date of the Order-in-Council.

Agitation for the Embargo

The principal exponent of the agitation for an embargo is Frank J. D. Barnjum, who owns a pulp mill in Nova Scotia, and he and his supporters at once redoubled their efforts to educate public opinion for a demand for a full embargo. The farmers, he maintained, could sell their pulpwood to mills in Canada, and it was suggested that in the matter of price, the Government should intervene and fix the price at the prevailing price in the American market. The objection to this, of course, was that the Canadian mills could simply refrain from buying and supply themselves from their own limits. As to the Order-in-Council, he charged that this was a secret measure passed at the behest of American interests, and that it would nullify the labors of the commission even if that commission reported in favor of an embargo. The reply of the Government was that it was neither legally nor morally right to nullify anterior contracts, and that the fact that the Order-in-Council applied from the date of the appointment of the commission prevented contracts being made in anticipation of an embargo.

Work of the Commission

Meanwhile the commission at once set about its work. It was divided into sections, so that the whole country could be covered as quickly as possible, and the evidence of all parties gathered in order that an early report might be presented. There can be no doubt that the overwhelming mass of evidence has been in opposition to the embargo. Mr. Barnjum was asked to appear before the commission and he agreed to do so, but subsequently declined, on the grounds that the Order-in-Council had made a farce of the

whole proceedings and also that he did not propose to be "bulldozed" by cross-examining lawyers. This latter had reference to the fact that the American interests had engaged Aime Geoffrion, one of the most able lawyers in Canada, to represent them at the inquiry. It was pointed out that Mr. Barnjum could only be cross-examined with his own consent, but that did not alter his decision not to appear before the commission.

Determined Stand by Hon. Taschereau

Among the important developments resulting from the agitation is the determined stand taken by the Hon. L. A. Taschereau, Prime Minister of the Province of Quebec. He has come out flatly in opposition to the proposed embargo. In a speech in the Legislature on the subject, he practically served notice on the Federal Government that they must keep their hands off Quebec, and leave to this province a free hand in matters connected with its forests and other natural resources. That he has the support of the people generally in this stand cannot be doubted. For instance, the Hull County Council has added its voice to that of Premier Taschereau against the embargo. It can therefore be said with assurance that Quebec Province is against the embargo, and Quebec, it should be remembered, was supposed to be the province that would reap the most benefits from the prohibition of the export of pulpwood to the United States.

What the Premier Maintains

Premier Taschereau's statements on the question are worth quoting. He said that 90 per cent of the forests in the province belong to the Crown, and from these exportation of raw pulpwood is already prohibited. Of the remaining ten per cent, eight per cent belong to colonists and two per cent to American private interests. "I do not see the wisdom of Federal legislation for such a small percentage of the lumber," he said. "There is talk of conserving the forests, but it is well to remember that fires do 18 times the amount of destruction that is done by woodsmen. Fire is the chief cause of the destruction of the forests. Insects come second, and the lumbering operations third only. In my opinion it is for each province to protect its own forests, since in each province the forests constitute a great deal of the source of wealth, and each province should study the best means of fire protection. If Ottawa were to interfere it would set up legislation affecting the whole country, and what might suit one province would not suit another. We are watching the proceedings before the Royal Commission with much interest, but I believe an embargo will not give the results expected, will harm colonization in a large measure, and will also harm agriculture, because the forests in the province form an asset of the greatest importance for the farmers and colonists. We should not do anything whatever to alter the conditions under which the farmers and colonists may sell their wood, or harm their market in any way. We will await with interest the report of the commission, and in the meantime suggest to Ottawa to leave to each province the disposal of the forests within its respective limits, so that each province may take what steps are necessary in the best interests of its own people."

As supplementing this stand, the Quebec Legislature has just passed laws revolutionizing the system of forest protection in the province, especially in regard to fire control. The Provincial Government has also set aside the sum of $30,000 for combating insect pests.

Mr. Barnjum's Views

Mr. Barnjum, while agreeing with the necessity of combating the insect scourge and limiting fire destruction, maintains that these measures are not enough—that they must be supplemented by an embargo. He says he has personally investigated all the forest areas in Canada, and he could convince any unbiased body of men that Canada's available wood supply will become exhausted within a period of ten years unless drastic and immediate measures are taken to avert such a calamity. He has vigorously denounced the stand both of Premier Taschereau and of the Federal Government in the matter, and he states that instead of pleading with the Government to adopt the embargo he now dares any government, whatever its politics, not to prohibit the export of raw pulpwood from Canada.

As already indicated, Mr. Barnjum bases his argument in favor of an embargo first on the heavy drain on Canada's wood resources caused by the free export of pulpwood and secondly, by the fire losses and insect damages, all of which, he says, has so far depleted the forest resources in Canada that only a ten year supply at the present rate of consumption remains. Dealing with the argument that an embargo would be a hardship on farmers, he says that of over a million cords of wood now exported, not more than five or six hundred thousand cords are derived from farmers' or settlers' lots. He adds: "Since it would require only five mills with a capacity of 100 tons each to absorb this amount of wood and since more than twenty new mills are projected, if the embargo is put into effect, it is puerile for anyone to saw that the farmers' market for pulpwood would be jeopardized by an embargo." Replying to a criticism that he favors bringing new pulp mills into the country he recommends that the cut on Crown lands should, as a matter of fact, be reduced 50 per cent which would make a market for every cord of wood that is now being exported and would prevent the building of any more mills in Canada. He further says that Canada has too many pulp mills and he considers that it would be for the good of the country if no more live trees were cut for thirty years. But as he knows that this is impossible he considers that Canadians at least should derive the full benefit of their own devastation.

Points Against the Embargo

Against the embargo it is argued that over 80 per cent of the forests in Canada are owned by the Government and that the embargo already applies to this 80 per cent. Of the remainder, it is estimated that 10 per cent is owned by Canadian wood pulp manufacturers. Thus, the proposed embargo on pulpwood cut from freehold lands would only affect about 10 per cent of the whole. Only about one-quarter of the pulpwood cut from this is exported and three-quarters of the pulpwood exported comes from farmers. Therefore, only about two per cent of the cut is exported by others than farmers and this two per cent includes the cases of long term contracts and also forests the cut from which, owing to this situation, has no other market except the United States. It is contended, therefore, that the amount affected by the embargo would be relatively insignificant and that the real remedy for depletion of the forests is protection from fire and insects.

While public opinion seems to be taking a definite trend against an embargo, there are some who argue that if Canada continues to sell pulpwood to American manufacturers, this country ought to get in return a free entry for all Canadian wood products in the United States or, at any rate, free entry for all Canadian paper. Whether the Government will endeavor to make a bargain along these lines is not known.

Mr. Barnjum Said to Be Interested Advocate

It may be added that Frank J. D. Barnjum is a native of Montreal and comes of English parentage. He started work as an office boy in a stock broker's firm in Montreal and later moved to Boston where he joined the firm of W. W. Kellett & Co., dealers in tanning materials. He became interested in forests owing to purchasing hemlock bark for tanning for that firm. In 1889 he bought a large tract of timber lands in Franklin County, Maine, for $30,000 and he later sold the lands for around a million dollars. Then he purchased timber lands in Nova Scotia. At the present time he is president of the MacLeod Pulp and Paper Company, which has a small ground wood plant on the Mersey River, Nova Scotia. His opponents charge that owing to the situation of this plant, Mr. Barnjum is an interested advocate of the proposed pulpwood embargo.

NEWS PRINT PRICES BREAK ON THE MONTREAL EXCHANGE

Sharp Declines Attributed to Alarmist Story Which Originated in Toronto—Lord Rothermere to Visit Quebec and Announcement Regarding New Sillery Mill Project is Expected—Henri Keifer, Forest Engineer, Appointed Chief of New Protection Service—Grand Falls Power to be Developed by the New Brunswick Government—Royal Commission to Report Soon on Pulpwood.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., April 14, 1924.—A sharp break in news print prices has taken place on the Montreal Stock Exchange during the past week as a result of an alarmist story from Toronto to the effect that there was a possibility of a decline in news print prices. Spanish River, Abitibi and the St. Maurice Paper showed the principal declines. The declines are attributed to a bear attack by short interests. It appears that while most of the Canadian companies started out this year with their output contracted for six months, there was a surplus of about 40,000 tons not contracted for, for which a market had to be found. This amount of paper seeking a market is said to have had an unsettling effect upon manufacturers and it has created the situation of which the Street had been hearing rumors going around as to the possibility of declining prices. While our first line companies were tuning up their productive capacity to new record levels in 1923, new developments were being installed. In fact, at present in the West there is being installed the thirteenth new machine since January 1923. These thirteen new machines have given Canada roughly 1,000 tons additional production daily. The net result of increased consumption in the United States and the gradual closing down of news print mills in that country has not kept pace with our increased output. That it may eventually do so is firmly believed.

Lord Rothermere's Visit

Lord Rothermere is expected in Quebec at the end of the present month and, following his visit, a final announcement will be made regarding the construction of the new pulp and paper mills at Sillery, which it is reported, are to be erected at that point by the Gulf Pulp and Paper company for the exploitation of the Manicouagan limits, which were leased last fall by Frank Clarke, acting for the Rothermere interests. The newspaper magnate, according to reports from Chicoutimi, plans to visit the Lake St. John district, but no confirmation is available as to his real intentions concerning the Chicoutimi Pulp Company. His coming to Canada at a time when a company of such importance is in difficulties, leaves no doubt that if conditions seem the least advantageous, there will be investment on the part of English financial interests. Regarding the pulp and paper mills at Sillery, it is estimated that between $5,000,000 to $8,000,000 will be expended by the Gulf Pulp and Paper Company to erect the mills, also for the construction of wharves where the shipments of timber from the forestry reserve on the north shore at Manicouaga will be brought. It is understod the motive power will be available from the Shawinigan Water and Power Company the lines of which pass only at a short distance.

Quebec Forest Chief

Henri Keifer, forest engineer, at present in charge of the district north of Montreal, has been appointed chief of the new protection service of the Province of Quebec at a meeting of the Provincial Cabinet. By legislation adopted in the last days of the session of the Legislature, provisions were made for radical changes in regard to the protection of forest against destruction by fire. Through the complete separation of the forest protection service from the Forestry branch, a first move was made. The Forestry service headed by Gustav Piche, Chief Forestry Engineer, and Avila Bedard, his assistant, will look after the maintenance of the forest through planting and preservation methods offered by forestry experts. The forest protection service created by the Government will have as its chief and unique aim the prevention of forest fires and the checking of any outbreaks by the most efficient means. From the Parliament buildings at Quebec, where the headquarters of the service will be located, Henri Keifer will be kept informed constantly on fire outbreaks, and also on the progress made in checking them. Instructions will be issued to the inspectors who will be given a certain latitude, but must report their activities to headquarters.

Federal Government and Forest Protection

In discussing in the House of Commons at Ottawa an estimate of $1,150,000 for the protection of timber and the management of forest reserves, Hon. Charles Stewart, Minister of the Interior, stated that approximately one billion more feet of timber was destroyed than was manufactured in Canada annually. One-half of the total timber losses of Canada were by fire. More drastic measures of prevention must be taken. The Department of the Interior proposed to utilize the Royal Canadian Air Force for detection of fires this year. The sum of $5,000 was to be used for educational purposes in regard to fire prevention and the department hoped to reduce the annual loss by half. It should be the aim of the country to replenish the amount of timber used every year for manufacturing purposes. Considerable headway had been made in obtaining the co-ordination of the provincial governments to obtain protection of the forests from fire. Hon. J. B. M. Baxter objected to the existence of diverse fire protection regulations in different parts of the Dominion. There should be uniform laws on the subject and they should be rigidly enforced. Right Hon. Arthur Meighen found little encouragement in the minister's assurance regarding the success of forest fire prevention regulations. In spite of them, destruction by fire was increasing yearly. The use of airplanes was all very well, but Canada's airplane system was limited. The Government ought to formulate a definite and adequate plan of forest protection.

To Develop Grand Falls Hydro

The Grand Falls on the St. John River will be developed for hydro purposes as a public development and public ownership proposition and the New Brunswick Government will not give any consideration to private development or private ownership proposals, Premier Veniot declared in his speech in the budget debate in the Legislature a day or two ago. Overtures had been made by the "big interests" to the Government, he said, in connection with the development of the Grand Falls, but the Government had turned them down. This observation was made in connection with an argument which appeared to be aimed at linking up the opposition with some "big interests" in connection with their hydro development policy and naming Hon. A. R. Gould of Presque Isle, Maine, who had been identified with construction of the St. John Valley Railway. The Premier declared that as much speed as was possible in connection with the preliminaries to the development was being made, there being certain formalities which must be gone through with, he explained; but no matter what obstacles might be put in the way, the Government was decided that the development is feasible and is prepared to go ahead with it.

Early Report on Pulpwood

That the Royal Commission on pulpwood will make its report to the Government before the end of the present session of Parliament was indicated in a statement in the House of Commons by Hon. James Robb. This statement indicated that the Commission had completed its holdings in Canada and that representatives were now in New York continuing their inquiry.

Abitibi's New Director

L. R. Wilson, general manager of the Abitibi Power and Paper Company, Limited, has been added to the directorate of the company. The directors now number ten.

CHICAGO TRADE LABORING UNDER UNEXPECTED DECLINE

Demand in Most Branches of the Paper Industry is Practically Suspended and Some Prices Take a Tumble—Seaman Paper Co. to Occupy New Offices in the Wrigley Building on April 19—Another Series of Meetings for Chicago Printers Has Been Arranged—K. I. Herman Joins Staff of La Boiteaux Co.—Doings of Well Known Members of The Chicago Paper Trade.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, Ill., April 14, 1924.—All is not so roseate at present in the paper market here. Business took a sudden, and to some extent, unexpected decline about a fortnight ago. Orders are rather scarce in practically all divisions of the industry here, although fine papers are not nearly so hard hit as coarse, boards, containers and paper stocks.

It presents a most unusual situation, according to authoritative information. The market is firm but there is little business in the hands of merchants. On the other hand, mills are running to capacity on orders placed previously. It is assumed that when they get caught up, if a pick-up is not experienced by the merchants, mills will be required to curtail activities.

Book papers were in strong demand during January, February and most of March, but like the rest, have come in for a dull spell. Merchants are of the opinion that this situation will not last long and that trade will again resume its stride.

Demand in coarse papers also seems to be suspended, at least so far as large buyers are concerned. However, the slackness has not undermined prices. They still hold their own and it does not appear that lower levels will go into effect unless the situation becomes really serious.

No Demand for Boards and Containers

A sharp drop-off in calls for boards and containers features that branch of the market at present. There is very little business being placed by consumers. Manufacturers of all kinds of merchandise who usually are heavy purchasers of board are now almost entirely out of the market. They contend their own businesses are suffering from curtailed demand and they in turn must cut down on material for containers because they are not needed. What little business there is to be had is being let to the lowest bidder under strenuous competition.

It is said that the board and container industry is overproduced. However, many mills have shut down and in two or three more weeks, it is opined, a great portion of those now operating will be on the idle list. Prices are much lower now than they were. Factors here say that they believe that the slump is due partly to the presidential year bugbear and partly to the airing of scandalous occurrences at the Nation's Capitol. Money men are skeptical about making investments or putting out their money. It affects everybody all along the line.

Prices on most items of paper stock took a tumble last week, receding about ten per cent for the most part. The higher grade stock, however, held fairly firm. Mixed papers and old newspapers did not go any lower because they are now at a very low level. Roofing stock also went down about $3 per ton, and is expected to go even lower before another week is passed.

Seaman Goes to New Wrigley Building

On April 19 the Seaman Paper Company will move its general offices from 208 S. La Salle street to the tenth floor of the new Wrigley building, where more spacious quarters have been procured. It was impossible to enjoy the facilities needed at the old location for the force was rapidly outgrowing the place. At the Wrigley building, salesmen will be able to park their cars below without fear of violating the traffic regulations.

Starting in 1902 as a small paper house, the Seaman company has grown steadily during the last 22 years, until today it enjoys an enviable position in the manufacture and distribution of all grades of paper throughout the entire United States. In Chicago they have a seven-story concrete warehouse located at 411-23 W. Ontario street, carrying probably one of the largest stocks of book and other papers in that city.

Officers and directors of the company are: George M. Seaman, president; A. J. McKay, vice-president and assistant to the president; J. B. Seaman, vice-president (New York); D. R. Seaman, vice-president; George D. Jones, vice-president; C. W. Sherman, treasurer; F. A. Borchers, vice-president and secretary; F. M. Stephens, vice-president and sales manager, and J. Poole, vice-president and assistant treasurer.

Series of "More Business" Meetings

The second and last series of "More Business Meetings for Chicago Printers" begins today and will continue to April 25, under the auspices of the Chicago Paper Company, and the Paper Mills Company, two of the larger paper merchants in the territory. These meetings are part of the plan of S. D. Warren Company, manufacturers of high-grade book papers, to build more business for the printer. The meetings are being held twice daily at the Sherman Hotel, at 1:30 in the afternoon and again at 7:30 in the evening. The same lecture is given at each gathering. At these meetings the printer gets some valuable suggestions and sales helps in creating new markets for printing, which incidentally increases the demand for paper, not only book papers, but cardboards, cover papers, bonds and ledgers, although the Warren company does not produce anything except book papers. So it is plain to see that their plan is a very broad one.

Following the series here in Chicago, the lecture will be given in South Bend, Ind., through the St. Joseph Valley Typothetae on April 28, then on May 5 at Rockford, Ill., either through the Typothetae or the advertising club, on May 6 at Madison, Wis., and then at Davenport, Iowa, and Danville, Ill., but the dates of these last two are not yet determined. The fourth week will be devoted principally to a series of meetings in Chicago for the advertiser who is interested in preparing printed literature.

Herman Now With La Boiteaux

K. I. Herman, well known in Chicago as a box manufacturer and board man, joined the staff of the La Boiteaux Company on April 1. His connection with this firm will bring him in close touch with the board mills and further increase the service of the La Boiteaux firm to the paper box industry.

Previously Mr. Herman, with George J. Kroeck started the Kroeck & Herman Company to manufacture solid fiber boxes. Later on Kroeck sold his interest to Herman and the company was known as the K. I. Herman Company. During this period Herman purchased the plant on Kingsbury street, Chicago, which was afterwards sold to the Mid-West Box Company, when consolidation of that firm and the Herman company took place. Mr. Herman remained for several years as an officer in the concern and still retains a large interest in that organization and is one of its directors.

Activities of the Paper Trade

William Hirst, of the Midland Paper Company, Chicago, can lecture on the possibilities in selling paper for announcements as he ably demonstrated a week or so ago when he talked on this subject before a gathering of Chicago stationers.

Thorn Earl, of the Michigan Paper Company, of Plainwell, Mich., was in Chicago corraling business while other members of the industry were off at New York attending the convention.

MATHIESON System

An Existing Bleach Plant

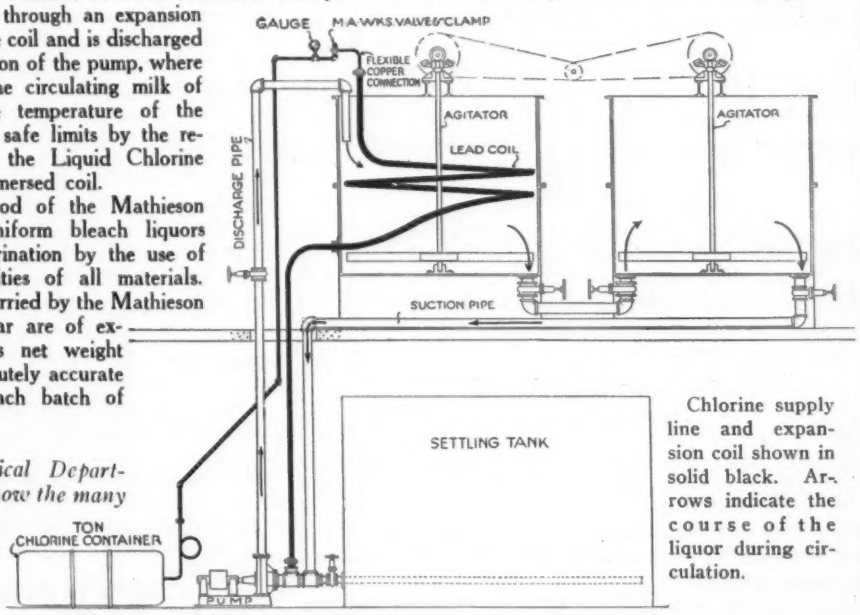
Readily Adapted to the Use of Liquid Chlorine

THE accompanying drawing illustrates how the existing bleach plant of the Crystal Tissue Company, Middletown, Ohio, was easily converted to the use of Liquid Chlorine by the Mathieson System. Necessary additional equipment consisted only of the chlorine connections and supply line and the lead expansion coil installed in one tank.

The two former bleach-mixing tanks now operate as a single unit, the combined capacity being sufficent to take the full contents of a ton container of Liquid Chlorine. The Liquid Chlorine enters the upper end of the lead coil through an expansion valve, vaporizes in the coil and is discharged as a gas into the suction of the pump, where it is absorbed by the circulating milk of lime solution. The temperature of the liquor is kept within safe limits by the refrigerative effect of the Liquid Chlorine vaporizing in the immersed coil.

The Batch Method of the Mathieson System produces uniform bleach liquors and avoids overchlorination by the use of predetermined quantities of all materials. The ton containers carried by the Mathieson Multi-Unit Tank Car are of exactly 2,000 pounds net weight and provide an absolutely accurate unit measure for each batch of bleach liquor.

Let our Technical Department demonstrate how the many advantages of the Mathieson System can be realized in YOUR *plant.*



Chlorine supply line and expansion coil shown in solid black. Arrows indicate the course of the liquor during circulation.

THE MATHIESON ALKALI WORKS, *Inc.*

25 WEST 43rd STREET NEW YORK CITY

PHILADELPHIA PROVIDENCE
CHICAGO CHARLOTTE

Deal Direct with the Manufacturer

Bicarbonate of Soda
Liquid Chlorine-Caustic Soda
Sesquicarbonate of Soda
Bleaching Powder-Soda Ash

PHILADELPHIA FINE PAPER HOUSES HAVE QUIET WEEK

Slump in Demands of Large Publishing Houses Noticed and Stock Market is Draggy—Mills in Manayunk District Have Trouble with Floods—Shryock Bros. Honored at Dinner Given by Chamber of Commerce to Century Old Firms—J. L. N. Smythe Celebrated Seventieth Birthday and is Remembered by Employees—Vernon R. Schroff Leaves Beck Co.—Paper Men Appoint Committees.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., April 14, 1924.—Fine paper houses have been conducting the week's sales on a hand to mouth basis with a decided slump in the demand from the big publishing houses which heretofore have been buying rather generously, for the Spring demands. Here and there may be booked a few large orders but they are not as general as was noted a few weeks ago. Few of the larger printing establishments have been working to full capacity but their orders for paper were filled in the early days of March and there has been no tendency to reorder except where immediate requirements for special brands existed for grades not included in the larger orders placed earlier in the season. There has been noted a cautious buying all along the line, and only expert and persistent salesmanship has been able to land anything worth while in sizeable orders.

While there is the same marking of time in the coarse paper markets prices are holding firm with a few exceptions in the way of offerings in No. 2 Kraft which show a slight shading off the prevailing prices of early April. These offerings, however, are not of permanent nature as they emanate from those mills which are temporarily closing down for repairs or rebuilding and inducements in price concessions are made to get rid of surplus stock.

Stock Market Draggy

Dragginess is noted in the stock movement and there too prevails a waiting attitude. Stocks in warehouses are very low especially for the higher priced paper stock and, if there is any immediate awakening of the mill demand, a shortage of this grade is sure to take place for there is very little to be had even where special attention is given to accumulation.

Old Paper Mills Honored

Among the century old firms, in whose honor the Philadelphia Chamber of Commerce gave a dinner at the Bellevue Stratford Hotel during the week, was that of the paper board manufacturing mills of Shryock Brothers, with a record of 134 years of business life. Although Philadelphia stands first in the United States as pioneer in the paper manufacturing business of the country and in it is the shrine of the first paper producing plant, the Rittenhouse Mill, located along the Wissahicken, founded by Nicholas Rittenhouse back in 1690, this mill long has been abandoned and only the original building remains intact as one of the few reminders of the old colonial days extant. But to the Shryock Brothers, belongs the distinction of the oldest mills still in operation dating back to 1790 and originating with the Hollywell Mill, established in Chambersburg, for the manufacture of bank note paper and founded by John Shryock. George A. Shryock succeeded his father in the mill and in 1832 invented what is known as the grooved wood roll which since its introduction never has been improved upon. In 1866, S. S. Shryock, father of the present active members of the firm, with his brother, sons of George A. Shryock, erected near Shippensburg, Pa., what was known as the "Middle Spring Mills" to the trade and began the manufacture of straw and pulp board. In 1902 S. S. Shryock, Sr., purchased his brother's interest in Shryock Brothers, as the firm then became known and a few years later incorporated under the laws of Pennsylvania and with mills located near Downingtown, Pa., continued to manufacture paper boards. Associated with President S. S. Shryock, Sr., now nearing the four score and ten milestone of his life, are his two sons Owen A. Shryock, and S. S. Shryock, Jr., the former being Secretary and Treasurer of the company and the latter its Vice-president.

Another firm, whose head is directly associated with the paper board manufacturing industry as president of the Frank Bicking Paper Mills also of Downingtown, Pa., but whose main business is that of lumber dealer, was included in the list of century old enterprises entertained by the Chamber of Commerce. It was the McIlvain Lumber Company of which J. Gibson McIlvain is head and which dates backward to 1798. The present head of the firm is also President of the Frank Bicking Paper Mills. He was honored during the week by re-election to the Presidency of the Pennsylvania Society for the Prevention of Cruelty to Animals at its annual meeting.

Floods in Manayunk Mills

Waters of the Schuylkill rising to from 12 to 14 feet following the Spring thawout in upper streams for a time endangering many of the paper mills in the Manayunk district on Venice Isle, bordering the Schuylkill Canal. On Sunday morning the mills sent a S.O.S. call to the workmen by siren whistles summoning the employees to help remove stock in the basement because of the danger from flooding due to rapidly rising waters. Employees spent the Sabbath removing the stocks to safety on the upper floors of the mills. The mill owners were warned by the keeper of the Flat Rock dam who found on his midnight watch that the waters had risen over six feet and that there was evidence of another dangerous rising before the morning. Despite the efforts of the employees to get goods to safety before damaged, several of the mills in the district were engulfed before all the materials were hauled from the danger zone. The McDowell Mill was forced to suspend operation shortly after midnight on Sunday because the machinery, operated by water turbine was in the affected area and the Flat Rock Mills suspended manufacture for a short period, both resuming production within a few days when the waters receded. The Philadelphia Paper Manufacturing Company was also caught in the flood. By the end of the week all were operating to full capacity and the waters returning to normal flow.

Vernon R. Schroff Leaves Beck Co.

Vernon R. Schroff, who for many years has been connected with various fine paper houses in the Philadelphia paper distribution trade, has severed his connection with the Beck Paper Company and entered business on his own account as broker with offices in the Drexel Building. He will feature a line of fine papers as mill representative. After the dissolution of the old Megarge-Hare Company with which he was connected, Mr. Schroff joined the Whiting-Patterson Company as head of the Book Paper Department and later left that company to enter business for himself. He discontinued his own business to join the Beck Company as city sales representative.

G. A. Bossler Enlarges

In order to provide for the expansion of business the specialty house of G. A. Bossler, has taken larger quarters in the building at 248 N. Delaware avenue where it occupied the main floor. The former home of the firm at 7 S. Water street, was sold by Mr. Bossler and the larger premises taken over. In it there has been stocked larger quantities than heretofore carried of the specialized line of parchment papers, and butter and egg cartons, in which the firm deals.

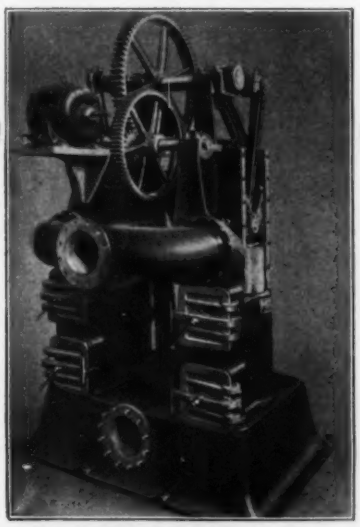
J. L. N. Smythe Honored On Birthday

When J. L. Nevill Smythe arrived at his desk, on the morning of his 70th birthday, celebrated last Friday, he was greeted by a memento of the occasion—a large bunch of American Beauty roses numbering as many years as his life—presented by the employees

(*Continued on page* 30)

FAMOUS PRODUCTS SERIES NO. 18

Lancaster Bond



High Efficiency Stuff Pumps

Valley Stuff pumps, both duplex and triplex types, are built to give the highest efficiency and are unusually heavy and well constructed. They have large stock chambers permitting unrestricted flow, and their exceptionally long stroke eliminates wear on the bearings. They are very accessible and it is an easy matter to change the balls or clean out the stock chambers. These pumps are arranged for either direct motor or belt drive. Let us give you more information about Valley Stuff Pumps. Write for it at once.

Valley Iron Works Co. Equipment *is used in making* Lancaster Bond

Clean, made in attractive colors, of exceptionally high quality, Lancaster Bond has won a just popularity with printers in all parts of the country. It is an example of the excellent papers produced by the Gilbert Paper Company of Menasha, Wisconsin.

When a middle-western mill is given the contract for producing the paper for official use in an eastern paper-making state, when this contract is placed on the basis of high quality at a fair price, proper manufacturing methods must be used by the company receiving the contract. Many pieces of Valley Iron Works Company equipment are used in making Gilbert papers and Valley Stuff pumps, beaters and centrifugal pumps are part of the modern equipment in this well-known mill.

Valley Iron Works Company

Builders of paper and pulp mill machinery.

Plant: APPLETON, WISCONSIN.

New York Office: 350 MADISON AVE.

SPECIFICATION FOR PURCHASE OF PAPER

By E. O. Reed, Chief of Tests, and Herman Davidson, Junior Chemist, Government Printing Office.

There is some doubt in the minds of the paper makers and the users as to the necessity and value of paper testing. In fact, statements have been made that the testing of paper is not as important as that of other materials, and that, even though paper testing may be necessary, methods for testing are not sufficiently developed for commercial use.

Paper is one of the most important commodities in use today, and with the growing commercial importance of paper there has developed considerable interest in the technical determination of quality and serviceability. This work is now so far progressed that testing methods for paper may be favorably compared with those for any material. Various tests, covering practically every field available—chemical, microscopical and physical—have been developed and are widely used.

The government was one of the pioneers in paper-testing work and its commercial application in the purchase of paper. For more than 15 years, under the direction of the Joint Committee on Printing, specifications have been prepared and used by the government in the purchase of all paper, from news print to the highest quality ledger, and papers for special purposes.

The Government Printing Office annually purchases approximately 50,000,000 pounds of paper and paper products on specifications, which requires the technical testing of more than 4,000 deliveries of paper annually.

From the knowledge gained in the testing of thousands of deliveries in order to secure the most serviceable paper for the various uses and to better indicate to the paper manufacturer the qualities desired, changes in these specifications have been made from time to time.

Quality Specifications

Considerable quantities of paper are also purchased commercially by large consumers on quality specifications. This is true especially when the paper is to be used for special purposes. The fact that the large consumers of paper, as well as the government, purchase paper upon technical specifications, together with the large amount of technical information on testing published, is the best proof of the importance of paper testing.

Government specifications cover the weight, ash, fiber content and strength, as well as other special tests. These specifications are not drawn for the manufacturer to use as formulae for the production of paper, but state the minimum qualities which will be accepted, the paper maker being at liberty to supply paper as much superior in quality as he desires. The specifications and testing methods are well known to all mills and sufficiently indicate the qualities desired, as evidenced by the use of these specifications for years and the number of competitive bids received.

The quality of paper may be determined only by technical testing. It would be impossible for the government to purchase the immense quantities and various kinds of paper used for the government printing in any other manner. Personal opinion, based on "rule of thumb methods," and individual judgment, have proven utterly unsatisfactory and unreliable. Paper makers, also fully appreciating the value of uniform quality of products, have developed technical paper testing as one of their best and most dependable means of control, removing the personal equation in the judging of quality.

There are two distinct advantages from the use of specifications for paper. Specifications make possible competitive bidding, and by technical tests of bid samples submitted for the same use, economy and maximum efficiency are obtained. Uniform and satisfactory quality is guaranteed by the inspection and testing of deliveries for compliance with specifications or the accepted bid sample.

Discretion in Tests

In order to be at all serviceable, specifications must be carefully drawn. Unless discretion is used in the selection of proper tests and test values the real purpose of specifications is defeated.

Dissatisfaction on the part of the consumer with the use of specifications may practically always be traced to the fact that the specification values were not in accord with good paper-making practice. Specifications should not be drafted by one unfamiliar with technical methods of testing, but only by a person whose experience is such that he possesses full knowledge of paper test values and their relation to quality.

Complaints by the paper maker regarding the use of specifications are sometimes justified when the paper buyer tries to make use of improperly drawn specifications. However, the complaints by the paper maker, caused by rejection of deliveries of paper through failure to meet specifications recognized to be properly drawn, must be considered in a different light. The paper maker who bids extremely low to outbid his competitors and then finds he must cheapen his product to meet his price, naturally would be opposed to any definite methods for checking up on the quality of paper he produces. Properly drawn specifications protect the honest paper maker against unfair competition, and are as advantageous to the seller as to the buyer.

QUIET WEEK IN PHILADELPHIA

(*Continued from page* 28)

of the J. L. N. Smythe Company. Accompanying the 70 roses was an artistically engraved scroll on which was recorded an expressive birthday sentiment conveying the good wishes of the employees and endorsed by all those who are associated with the founder and head of the firm in the many years of his connection with Philadelphia's paper industry. In the evening a birthday dinner and reception awaited him upon his return home arranged by the family and a large group of friends who gathered there to extend the compliments of the day.

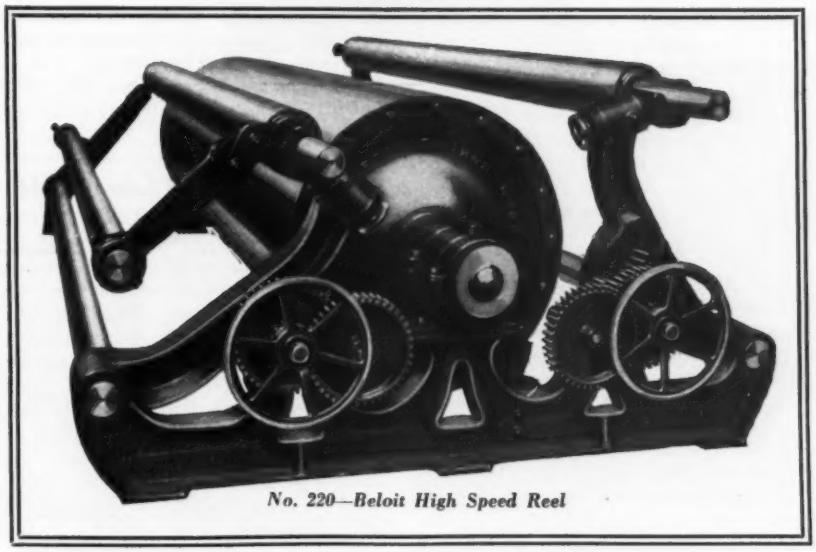
Paper Committees Appointed

Various Committees, to serve in conferences with other organizations on trade relationship, were appointed by the Philadelphia Paper Trade Association in a meeting held just before the members made their journey to New York to take part in the Annual Convention affairs last week. There was appointed an entire new personnel on the Trades Relationship Committee which will serve during the coming year, as representative of the Fine Paper Division in all trade matters pertaining to the printing industry and its relationship with the paper industry in conferences with a similar committee appointed by the Typothetæ of Philadelphia. Those appointed to this committee are Chairman Norbert Considine, of the Paper House of Pennsylvania; William S. Wilcox of Wilcox, Walter Furlong Company; David Lindsay of Lindsay Brothers and Howard Satterthwaite of the Garrett-Buchanan Company. Mr. Lindsay was appointed to represent the Paper Trade on the Typothetæ Board taking the place of Harry Donahue whose term expired. Leon Beck of the Beck Paper Company, was re-appointed as a Director from Philadelphia, representing the Fine Paper Division of Philadelphia on the Executive Board of the National Association with William Wilcox of the Wilcox, Walter, Furlong Paper Company as alternate. George Herhl of the Quaker City Paper Company will represent the Coarse Paper Division with Joseph Weaver of the Garrett-Buchanan Company as alternate.

Paper Stock Dealers to Dine

Preliminary plans for the annual banquet of the Philadelphia Paper Stock Dealers Association were developed at a meeting of the Entertainment Committee of the Association held last week. It was decided that the evening of April 30 was the time and date best suited for the occasion.

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS



No. 220—Beloit High Speed Reel

Insure Yourself Against Loss of Paper, Accidents, Inefficiency

THE BELOIT UNIFORM SPEED REEL effects a saving of paper every time you change reel drums. It displaces the old obsolete method, and insures steady, reliable performance plus absolute assurance of economy of operation. Furthermore, it entirely eliminates the danger of drawing men between reels of the conventional upright type, effecting a further saving in man power and accident liability. It can be depended upon to wind a beautiful roll that is very uniform in hardness.

Moreover the extra refinements added to this reel make it much handier than any of similar design. An instance of this is the ease with which paper is started on the drum. The passer does not have to change hands when performing this operation. Its simplicity and ease of operation is a revelation.

Let us know the face of your calender rolls and we will gladly submit a figure covering your particular case.

Beloit Iron Works BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS **Beloit, Wis., U. S. A.**

Established **Since 1858**

Recent Incorporations

SQUARE PAPER BOX COMPANY, Manhattan, New York. Capital, $3.400. Incorporators, H. Wax, S. Pollack and J. H. Stoller. Attorney, E. Moss, 169 Rivington street, New York.

PULPWOOD, Manhattan, New York, 5 shares common stock, no par value. Incorporators, J. C. Wressler, B. Feldstein, K. M. Harper. Attorneys, Weschler & Kohn, 29 Broadway, New York.

LAWLESS BROS. PAPER MILLS, Rochester, New York, 2,000 shares common stock, no par value. Incorporators, D. F. and M. J. Lawless, H. R. Reif. Attorneys, Hubbell, Taylor, Goodwin & Moser, Rochester.

BEST MAKE PAPER BOX MANFACTURING COMPANY, Manhattan, New York. Capital $5,000. Incorporators, M. Bookspand, M. Schneider, R. Oltarsh. Attorneys, Weinberg & Oltarsh, 158 Rivington street, New York.

RISING STAR PAPER BOX COMPANY, INC., Manhattan, New York. To deal in paper boxes. Capital $100,000. Incorporator, T. Thorner, 202 Keap street, Brooklyn.

GREEN-LOW & DOLGE, Manhattan, New York, paper manufacturing, 300 shares preferred stock, $100 each; 450 common, no par value. Incorporators, A. W. Green, F. G. Low, O. A. Dolge. Attorney, J. F. Condon, 1315 Boston Road, Bronx, New York.

EAGLE PAPER COMPANY, 75 Montgomery street, Jersey City, N. J., Robert H. Brenner, agent. Capital stock authorized 1,000 shares without par value. Incorporators, Alma L. Hermanns, Mildred L. Shanahan, and Arthur Pfarr.

TRAUB BOX COMPANY, Cleveland, Ohio. Capital $10,000. Incorporators A. E. Barton and Sam Jacobs.

RAMIER-HALL WAX PAPER COMPANY, Memphis, Tennessee. Capital $50,000. Incorporators, J. F. Ramier, R. W. Hall, W. J. Prescott, R. M. Dozier and Frank S. Elgin.

CAPITAL INCREASES

SOUTHERN COTTON AND PAPER COMPANY, Chattanooga, Tennessee $300,000 to $450,000.

Chicago Wrapping Men Elect Officers

CHICAGO, April 14, 1924.—In a regular meeting of the Wrapping Paper Association of Chicago held on the evening of April 10 the following officers were elected for the ensuing year: Jas. S. Danehy, Schwarz Paper Company, president; John Daily, Daily Brothers, 1st vice-president; Leo Altholz, Inlander-Steindler Paper Company, 2nd vice-president; Peter O'Leary, Rauth Brothers, secretary; William Ensweiler, Pomeroy Paper Products Company, treasurer; E. H. Allen, Allen, Ward, Myers & Schwartz, assistant secretary.

What Standardization Is Doing for Industry

The American Engineering Standards Committee has just issued a small but interesting book entitled "Standardization—what it is doing for industry." This describes how standardization is being carried on, first in the individual plant, second in industry as a whole, third nationally on an inter-industrial basis, fourth and last, internationally.

This book can be had by writing to the office of the A. E. S. C., 29 West 39th street, New York City.

Northwestern Meeting Postponed

The meeting of the Northwestern Division of the American Pulp and Paper Mill Superintendents' Association originally scheduled for May 2 and 3 at Marinetta, Wis., has been postponed to the latter part of July. The main reason for the postponement is to avoid a conflict with the national convention of the American Pulp and Paper Mill Superintendents' Association at Dayton, Ohio

To Direct Portland Rose Festival

O. W. Mielke, manager of the Blake, McFall Company of Portland, Ore., wholesale paper dealers, has been elected president of the Portland Rose Festival which will be held June 11, 12 and 13. This is the second year Mr. Mielke has had this honor bestowed upon him. The affair is always a unique one and Mr. Mielke extends an invitation to all paper men to make it a point to attend if possible.

The Jones Woodenware and Paper Company, 806-808 Spruce street, St. Louis, Mo., has changed its name to the Jones Woodenware Company, under which date it incorporated March 1, 1924. The officers of the new corporation are: F. W. Jones, president; Clifford C. Jones, vice-president; J. C. Figgenmeier, treasurer; Will B. Webber, secretary.

The Grand Lake Co., Moving Plant

RUMFORD, Me., April 14, 1924.—The Grand Lake Company, Inc., manufacturers of paper bags is moving its factory equipment from Woodland, Maine, to this place. The purpose of this move is to locate the equipment of the company at the paper mills from which it purchases the greater part of its tonnage. This move is expected to result in considerable saving in freight charges and also to make it possible for the Grand Lake Company greatly to improve its service to the trade.

The executive offices of the Grand Lake Company, Inc., are now located in the Pershing Square Building, 100 East 42nd street, New York City.

Making Pulp Only for Own Use

The Dryden Paper Company, which is now operating under a receivership, has cut down its production of kraft pulp from 65 tons daily to about 30, making only sufficient pulp at Dryden, Ont., for its own paper requirements and selling no pulp at the present time in the United States market. The company is turning out machine finished kraft, dry and water finished manilas, machine glazed pure kraft and machine glazed No. 2 kraft, as well as sheathing papers. The cutting down of operations has reduced the wood consumption of the organization by one half. There was considerable competition in the Dryden district this season in the purchase of wood for American mills. It is understood, however, that the settlers have not sold all of the quantity produced.

International Fibreboard Co. Running Full

The International Fibreboard Company of Midland, Ont., of which H. J. Wiser is general manager, is operating to capacity in its new plant. The company was burned out some months ago in Penetanguishene and moved to the neighboring town of Midland, where a suitable building was acquired and equipped. It is reported that the company is planning the installation of another plant in the near future.

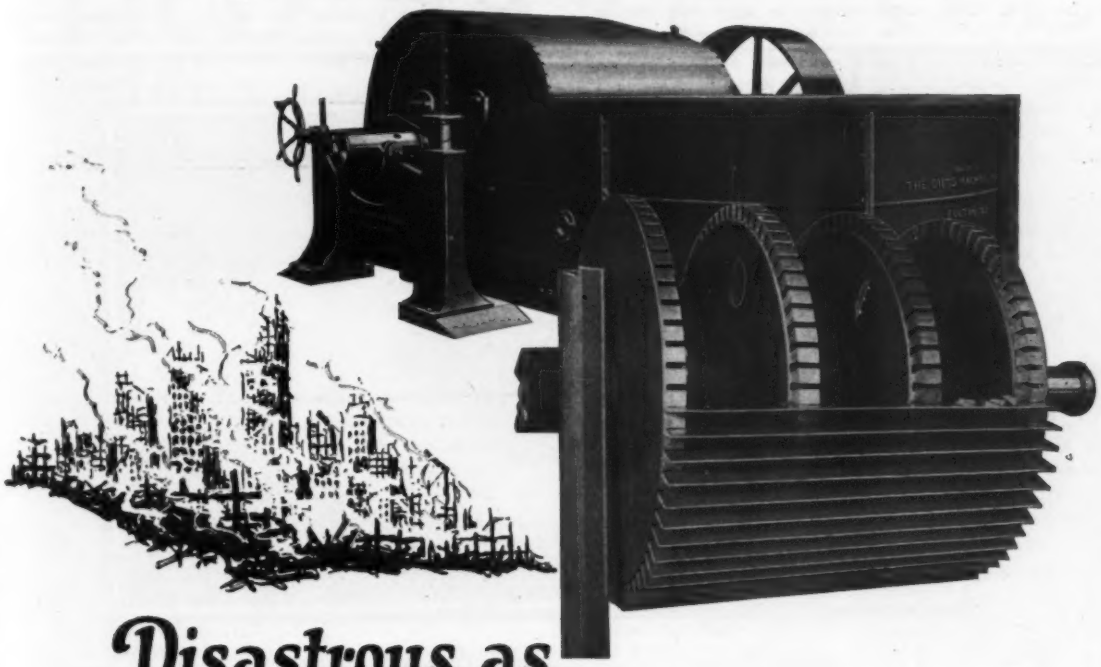
Dudley Forces Hear C. A. Prell

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., April 14, 1924.—C. A. Prell, advertising counsellor of the Allied Paper Mills, was in Lansing recently, where he addressed a meeting of the Dudley Paper Company's organization. In addition to the executive officers, branch managers and salesmen to the number of about 25 attended. It was in the nature of a two days' session. The Dudley Paper Company has offices at Lansing, Jackson, Saginaw and Traverse City.

W. M. Loveland, president of the Watervleit Paper Company, has returned from a two months' tour of the Mediterranean countries, Paris and London. He was accompanied by Mrs. Loveland and son.

Dilts-



Disastrous as the San Francisco Fire

The bursting of a beater roll band is often as disastrous to the beater department of a paper mill as an earthquake is to a city. Just as Sad Experience taught the city of San Francisco how to protect herself from future destruction, numerous accidents in the beater room led to the development of the bandless beater roll.

The Dilts Machine Works, Inc., was the first to introduce the Bandless Beater Roll in 1906, the year of the San Francisco earthquake. The original design has been improved until today no accident can knock a fly bar out of this roll. If one should be broken it can be replaced without disturbing the other bars. The roll can be refilled without removing from its bearings.

It is the beater roll which most successfully withstands the hard strain of beating raw rags and dirty mixed papers. It is equally serviceable for beating rope, bagging, dry sulphate or other hard stock or any stock containing foreign matter.

The Bandless Beater Roll is but one of many improvements which make the Dilts Beating Engine the leader of its field.

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

New York Trade Jottings

S. W. Dunning has moved from 132 to 150 Nassau street. The telephone remains the same—Beekman 2717-2718.

* * *

Fred Chase is on a business trip in New England for Daniel M. Hicks, Inc., 200 Fifth avenue, dealers in paper mill supplies.

* * *

Warren G. Merrill, for several years sales manager of the J. E. Linde Paper Company, is now connected with the Reading Paper Mills of Reading, Pa., whose sales office is located at 352 Madison avenue. Mr. Merrill will cover the New York and Philadelphia territory.

* * *

John Berrien writes to tell us we made a grievous error in connecting him with the Continental Paper Company when, as a matter of fact he is with the Union Bag and Paper Company. Two weeks ago we said he had just completed a trip through Michigan for Continental. He is now touring the Pennsylvania mills for Union Bag and Paper.

* * *

Herman M. Hess of Hess & Densen, 129 W. 20th street, has accepted the chairmanship of the Paper Box Manufacturers in the Home Service Appeal of the Salvation Army for a maintenance fund of $512,500 for its work in Greater New York during 1924. Mr. Hess will appoint a committee to assist him and will call a luncheon meeting in the near future to discuss plans. The campaign will run from May 4 to May 17.

Norwegian Standardization Efforts

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 16, 1924.—The Standardization Committee of the Norwegian Industrial Association was formed on October 11, 1923, and just recently the Norwegian Standardization Office has sprung into being.

The efforts of this new office will center mainly around introducing greater regularity and higher degree of uniformity in the dimensions, patterns and quality of Norwegian industrial products says Commercial Attache Sorensen, Copenhagen, in a report to the Department of Commerce. The office has, moreover, the object of attempting to do away with all superfluous and unnecessary variations of products, through cooperation with producer and consumer in order to ascertain what constitutes normal requirements.

Another branch of its activities comprises the elaboration of uniform descriptions and contracts and the correction of ambiguities with a view to creating sounder bases for contracts of sale and purchase. Through the medium of this office production costs will be reduced considerably and the consumer will obtain better and cheaper goods—goods of greater practical usefulness.

A special sub-committee of experts will sit on each question of detail, to which it will seek to apply the standards adopted abroad and to report to the Standardization Office.

Probably the first two matters for attention will be the standardization of paper sizes and the uniform execution of technical drawings.

R. P. Andrews to Continue Stationery

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 16, 1924.—Announcement was made some time ago by the R. P. Andrews Paper Company, of this city, when the Telephone Company purchased the Andrews Building that the firm would go out of the retail stationery business. The company however, has decided to remain in the retail business and the following announcement has just been made to that effect.

"Owing to the overwhelming number of requests received the last few weeks from customers all over the city, we have decided to continue the retail business of paper, commercial stationery, office furniture and devices—discontinuing all novelties.

"The House of Andrews has been in business in Washington for 31 years and during that time a very large percentage of the local concerns have learned to depend upon the R. P. Andrews Paper Company for their office supplies.

"In order to continue this service to its many customers and friends the House of Andrews has secured the Campbell Building located at 724 13th street, directly across the street from the location occupied so many years—and will take possession on or before May 15."

American Writing Paper Co. Finances

BOSTON, April 14, 1924.—The American Writing Paper Company, which is incorporated under the laws of New Jersey, has filed with the commissioner of corporations in Massachusetts a statement of its financial conditions under date of December 31, 1923 which is as follows:

	1923	1922
ASSETS		
Real estate	$1,343,248	$1,343,248
Water power	2,553,540	2,553,540
Machinery & equipment	10,448,031	10,615,567
Merch, mat, stock in process	3,682,868	3,962,609
Cash and debts receivable	1,784,660	2,483,731
Investments	52,715	152,015
Sink fund	62	32,732
Deferred assets	4,623	....
Goodwill	18,010,151	18,010,151
Prepaid exps	127,764	110,741
Other assets	....	92,096
Total	38,007,662	39,356,430
LIABILITIES		
Capital stock	22,000,000	22,000,000
Accts. payable receiver	624,780	....
Funded debt	9,293,000	9,293,000
Floating debt	900,000	1,080,000
Notes & accept payable	1,478,052	*2,376,943
Accrued liab.	306,817	87,077
Res. for conting	177,137	381,085
Accts. payable	808,558	....
Surplus	2,419,318	4,138,325
Total	38,007,662	39,356,430

*Includes accounts payable.

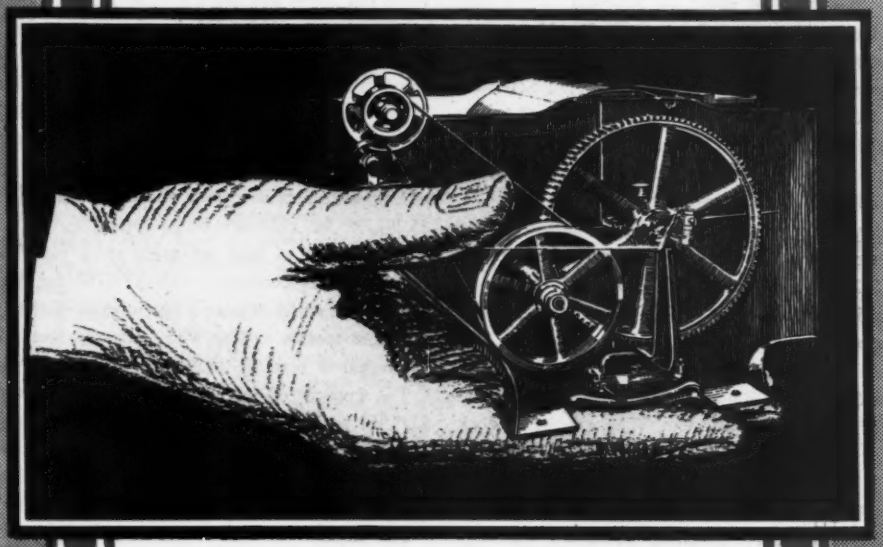
Big Sales of Swedish Pulp for America

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 16, 1924.—Considerable advance sales of Swedish wood pulp have been made since the first of the year to American and European buyers according to a report received by the Department of Commerce. It is estimated that to date somewhat over 300,000 tons of sulphite and 120,000 tons of sulphate have been disposed of by Swedish sellers for later delivery, some of which represents stocks carried over from the end of 1923. More than 40 per cent of the normal Swedish wood pulp for 1924 is reported to have been contracted for by foreign buyers, chiefly American and British.

This situation, however, is not an unusual one, for it is the custom to contract for future deliveries as early in the year as possible, especially if fairly large stocks have been carried over from the previous year. Although prices have not changed much recently, the feeling among Swedish sellers appears rather optimistic, due in part, possibly to the strike in the Norwegian wood pulp mills. In local pulp circles, however, it is not thought that the strike will last long enough to appreciably affect Swedish market conditions.

BIRD SAVE ALL



How Much Does It Cost To Recover Stock?

The average fibre loss in your mill effluent may vary from 1 to 6%. It may be more or it may be less.

But regardless of the exact amount, this loss can be reduced at small expense.

Bird Save-Alls in your basement recover practically all of the good fibres in white water and return them to the system for immediate use.

The experience of practically all of our customers is that Bird Save-Alls pay for themselves in less than a year.

Thus, the cost of the original installation is soon balanced by the value of the stock recovered. And the continued saving of the Bird Save-All makes it a highly profitable investment. *Catalog on Request.*

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SOUTH WALPOLE ~ MASSACHUSETTS

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T. H. Savery, Jr., 1718 Republic Bldg.
Chicago, Ill.

Canadian Builders of Bird Machinery
Canadian Ingersoll-Rand Co., Ltd.
260 St. James St., Montreal, Canada

Editorial

Vol. LXXVIII New York, April 17, 1924 No. 16

HENRY J. BERGER, Editor

FOREIGN PAPER SALES

The statistics of the exports of paper for February, which have just been issued by the Department of Commerce at Washington and which are the latest figures available, continued about the same as for some months past, the figures for the month being $2,045,961 as compared with $2,051,584 for January and $1,959,194 for February of the year previous. The exports of all varieties of paper for the eight months ending with February amounted to $16,601,966 as compared with $16,234,130 for the same period last year.

The exports of news print showed a considerable falling off for the month, the figures being $149,740 as compared with $181,754 for February and $121,280 for January of 1923. The exports of newsprint for the eight months ending with February amounted to $1,072,413 as compared with $1,241,830 for the preceding year.

The exports of book paper, not coated, also declined, the figures for the month being $113,069 as compared with $151,648 for January and $261,389 for February of last year. The exports of book paper, not coated, for the eight months ending with February were valued at $1,702,195 as compared with $2,011,741 for the same period ending with February 1923.

The exports of wrapping paper, including Kraft, for February were valued at $180,518 as compared with $158,582 for January and $173,181 for February a year ago. The exports of wrapping paper for the eight months ending with February were valued at $1,384,619 as compared with $1,418,669 for the same period ending with February in 1923.

The exports of writing paper except papeteries, for February were valued at $55,856 as compared with $104,124 for January and $80,204 for February of last year. The exports of writing paper, except papeteries, for the eight months ending with February were valued at $681,795 as compared with $745,035 for the same period ending with February in 1923.

The exports of tissue and crepe paper during February were valued at $48,553 as compared with $61,774 for January and $64,203 for February of last year. The exports of tissue and crepe paper for the eight months ending with February were valued at $592,718 as compared with $565,980 for the same period ending with February in 1923.

The exports of paper board and straw board for February amounted to $287.94 as compared with $236,732 for January and $177,809 for February of last year. The exports of paper board and straw board for the eight months ending with February were valued at $1,870,971 as compared with $1,441,100 for the same period ending with February in 1923.

The exports of paper bags for February were valued at $92,237 as compared with $79,496 for January and $102,283 for February of last year. The exports of paper bags for the eight months ending with February were valued at $587,427 as compared with $641,095 for the eight months ending with February of last year.

The total imports of paper for February also continued about the same as recently, the figures for the month being $9,446,214 as compared with $9,483,789 for January and $7,891,321 for February of last year. The latest imports of paper for the eight months ending with February were valued at $77,943,245 as compared with $63,015,802 for the same period last year.

The imports of news print for February were valued at $8,044,932 as compared with $8,234,614 for January and $6,713,684 for February of the preceding year. The imports of news print for the eight months ending with February were valued at $66,371,088 as compared with $52,906,484 for the same period last year.

The imports of wrapping paper, including Kraft, for February were valued at $214,261 as compared with $193,202 for January.

The imports of book paper for February were valued at $590,828 as compared with $558,130 for January and $660,417 for February of last year. The imports of book paper for the eight months ending with February were valued at $5,877,375 as compared with $5,294,752 for February of last year.

The imports of rags for paper stock for February were valued at $665,987 as compared with $552,297 for January and $403,538 for February of last year. The imports of rags for paper stock for the eight months ending with February were valued at $4,674,016 as compared with $3,738,298 for the same period last year.

The imports of mechanical pulp for February were valued at $525,834 as compared with $605,800 for January and $874,187 for February of last year. The imports of mechanical pulp for the eight months ending with February were valued at $6,169,828 as compared with $5,435,437 for the same period of last year.

The imports of unbleached sulphite pulp for February were valued at $3,426,361 as compared with $2,502,780 for January and $2,138,257 for February of last year. The imports of unbleached sulphite for the eight months ending with February were valued at $19,887,579 as compared with $18,693,179 for the same period of last year.

The imports of bleached sulphite for February were valued at $1,745,769 as compared with $1,441,230 for January and $1,867,406 for February of last year. The imports of bleached sulphite for the eight months ending with February amounted to $13,547,840 as compared with $14,153,892 for the same period ending with February in 1923.

The imports of Kraft pulp for February were valued at $1,694,276 as compared with $1,152,551 for January and $819,281 for February of last year. The imports of Kraft pulp for the eight months ending with February were valued at $11,192,198 as compared with $11,513,642 for the same period last year.

STATUS OF TRADE ASSOCIATIONS

According to reports from Washington the question of the legal status of trade associations will not be revived immediately although Secretary Hoover does not intend to abandon his attempt to secure from the Department of Justice constructive action that will define the limitations placed by law upon co-operative business. He has indicated that he will broach Harlan F. Stone, the new Attorney General, on the matter, but not until the latter has had an opportunity to take affairs now pending in his department in hand.

Attorney General Stone last week did not answer directly questions concerning trade association activities but confined his reply

to the general statement that the relation of the Department of Justice to business is defined by law. He said that the Department can proceed only through the courts, and that practices, the legality of which is in doubt, must stand or fall on the court's opinion.

It is believed that Secretary Hoover will seek to arrange for prosecution of a case that will permit of a rule by the court solely on the legality of the practice of a trade association in collecting, compiling and disseminating current statistical information to its membership. In previous cases, the real issue has been obscured by the Government's charges that the association's members have made unlawful use of such data, for co-operative control of production and prices.

Employment in Paper and Pulp Mills

The Bureau of Labor Statistics, Department of Labor, for February, received replies from 176 paper and pulp mills which gave their employment in February of last year at 50,095 decreasing in the same month of this year to 49,780 a decrease of 0.6. The payrolls of these plants on the other hand increased from $1,241,687 in February of last year to $1,337,721 to February of this year an increase of 7.7 per cent.

The Bureau received replies also from 138 paper box factories which gave their employment in February of last year at 14,464 increasing in February of this year to 14,839 an increase of 2.6 per cent. The payrolls in these plants also increased from $283,284 in February of last year to $307,297 in the same month of this year an increase of 8.5 per cent.

One hundred and eighty-five paper and pulp mills reported their employment in January at 51,981 increasing in February to 52,443 an increase of 0.9 per cent. The payrolls in these plants also increased from $1,350,210 in January to $1,408,005 in February an increase of 4.3 per cent.

Replies were also received by the Bureau from 154 paper box factories showing their employment in January to have been 19,018 decreasing in February to 18,980 a decrease of 0.2 per cent. The payrolls in these same plants increased from $402,651 in January to $404,807 an increase of 0.5 per cent.

Duty on News Print Side Runs

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 16, 1924.—Officials of the Customs Service are understood to be in considerable of a quandary in connection with a decision which they are being called upon to make relative to a duty on side runs of news print paper which are being used in the United States as wrapping paper.

The officials know for a fact that this paper is being used for wrapping purposes and yet they feel reticent about handing down a decision which would make this paper dutiable at 30 per cent ad valorem under the present tariff act when the wrapping paper is a by-product of the commodity coming into the country free of duty. It is probable however, that the customs service will have to hold this paper dutiable as wrapping paper.

Give Lime Sludge to Farmers

The Nekoosa-Edwards Paper Company of Port Edwards, Wis., has made a large quantity of lime sludge, waste from its mill, available to farmers to be used on the soil to counteract acidity. This lime sludge is valuable for farmers to prepare their soil for raising clover and alfalfa. About three tons is required to treat an acre.

The paper company went to considerable trouble and expense to make this sludge available to farmers and was highly praised for its co-operation by the county agricultural agent. About 40 tons of moist lime sludge are produced at the mill every day. Farmers can have the waste for hauling it away.

Charge Stationers with Unfair Competition

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 16.—The National Association of Stationers and Manufacturers of the United States, with its office in Chicago, the Wholesale Stationers' Association of the United States, with its office in New York City; and twenty-two local or sectional stationers' associations, are charged in a complaint issued by the Federal Trade Commission with unfair methods of competition affecting the trade and commerce in stationery goods. The members of the various associations, according to the complaint control the major portion of the manufacture, wholesale and retail business in connection with stationers' goods in the United States.

The National Association is a membership corporation organized under the laws of the State of Illinois, and its membership is composed of stationery dealers, local and sectional associations, and approximately twelve hundred of the principal wholesale stationers and manufacturers of stationery goods throughout the United States.

The Wholesale Association is a New York corporation of wholesale stationers, a large proportion of whom are members of the National Association.

The complaint alleges that the respondent's combination is entered into and continued with the purpose, intent and effect of discouraging, stifling and suppressing competition in interstate commerce in the wholesale and retail trade in stationery goods, and of unfairly hampering and obstructing competitors engaged therein, and of enhancing the prices of stationery goods.

The complaint also alleges that price competition on staple items of stationery goods has been largely eliminated and prices to the consumer on such staple items have been greatly and unreasonably advanced over prices prevailing prior to the alleged activities of the respondent associations and their members.

The following local and sectional associations are named as respondents in the complaint, with their officers and members: Atlanta Stationers' Club, Baltimore Stationers' Association, Boston Stationers' Association, Buffalo Stationers' Club, Chicago Stationers' Association, Colorado Stationers' Association, Kansas Book Dealers' Association, Louisville Stamp and Stationery Club, Northwestern Stationers' Association, Omaha Stationers' Association, Pacific Northwest Stationers' Association, Philadelphia Stationers' Association, Pittsburgh Stationers' Club, Richmond Stationers' Association, St. Louis Stationers' Association, Stationers' Association of California, Stationers' and Publishers' Board of Trade of New York; Stationers' Association of New York; Stationers' Association of New Orleans, Stationers' Club of Buffalo, Stationers' Association of Southern California, and the Stationers' Club of Toledo.

Go with Marr-McDonnell Co.

MT. HOLLY SPRINGS, Pa., April 14, 1924.—The Marr-McDonnell Company, manufacturers of Bond, Ledgers and Special papers of rag content, who have been quietly building a reputation on high grade papers during the past two years, are sending out to the trade, notices that Mr. Weston and Mr. Babcock have become affiliated with the Company's interests and will provide the desired personal element, necessary to properly care for the firm's rapidly increasing business.

Mr. Weston comes from the well known Weston family, paper makers of Dalton, Mass., his grandfather being the original Byron Weston, and his father the late Franklin Weston. Mr. Weston possesses the necessary requirements to make a complete success in his new connection and already is very favorably known in the trade.

Mr. Babcock needs no introduction to the paper trade, having served the industry in various capacities since 1894 and his well rounded experience will be of great assistance to the Marr-McDonnell Company, whose progress is already being favorably noted by the trade.

SYMBOL of QUALITY
KALBFLEISCH CHEMICALS
FOR NEARLY A CENTURY

Exclusive Manufacturers
of
Ryan-Seaman Process

DRY SATIN WHITE

The Latest Development in The Coated Paper Industry

Casein
Crystal Boro Phosphate
(A solvent for casein)

ALUM

Both Commercial and Iron Free
FOR PAPER MAKERS

Pulp Satin White
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THE KALBFLEISCH CORPORATION

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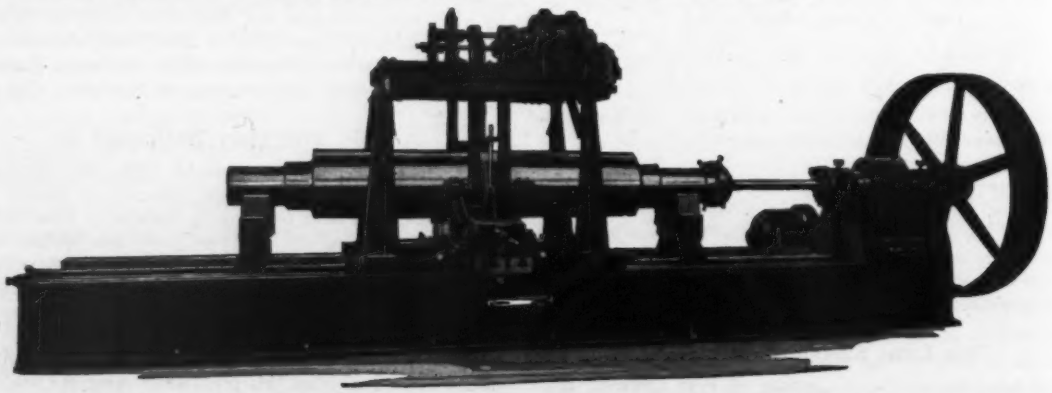
LOBDELL **ROLL GRINDERS** are the only machines of the kind fitted with automatic crowning device which develops a perfect crown without the use of a guide or former and repeated trying for the correct setting.



LOBDELL Calenders are equipped with Patent Electric Motor, Hydraulic or Ratchet Lift all operated from the floor.

LOBDELL Micrometer Calipers are handy and accurate.

LOBDELL CAR WHEEL CO. Est. 1836 **Wilmington, Del. U. S. A.**

Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

CONTROLLING THE BLEACHING OF SULPHITE PULP

By A. M. Cadigan*

A great deal has been said concerning the controlling of temperature and consistencies, both of the stock and the bleach liquor, in the bleaching of sulphite pulp. Statements have also been made as to the proportion of bleach liquor to add. But a study of the trade literature fails to show a mill method for controlling the amount of bleach liquor to add, to the pulps, of different bleachability added to the bleacher. Those methods that are described for determining the bleachability of pulps are for laboratory use alone, being either too complicated or requiring too long a period of time, for use in the mill. Some of them require five hours for their completion and in that time in many mills a bleacher can be filled, bleached and dumped, so that such a method would be of little use.

From the viewpoints of quality of product and economy of bleach, it is just as important to control the amount of bleach added to the bleacher as it is to control the temperature of the bleaching. By quality of product is meant here, principally, the color and strength of the pulp. The strength of a well cooked sulphite pulp is increased by bleaching; but, in order to attain the greatest increase in strength over that of the unbleached pulp, it is necessary that the conditions of bleaching—especially the amount of bleach added and the temperature—be carefully controlled.

We have been trying for some time to develop a method to enable the operator of the bleachers, the man in the mill, to determine the proper amount of bleach liquor at hand to be added to the pulp going to the bleachers in order to secure the color desired and at the same time maximum strength. Such a method must necessarily be simple and rapid, even though there be a sacrifice to some extent, of accuracy.

The method we have developed is as follows:

A sample of the bleach liquor in the measuring tank is drawn and 2 cc. of the same titrated with n/10 arsenite solution. The burette reading is referred to a chart or table which shows the grams of chlorine per litre and also the equivalent "number of pounds of 35 per cent bleaching powder per inch" of the measuring tank, for liquor of that strength.

Several small samples of the pulp going to the bleacher are caught from time to time during the charging of the bleacher. The samples are carefully mixed and an amount equal to about 2.5 g. air dry are taken for the test. This amount is dropped into a bottle containing 100 cc. of a standard potassium permanganate solution, the stopper replaced and the bottle shaken. The time required to just decolorize the permanganate is noted. This time reported in seconds constitutes the "bleachability" of the pulp. This figure is referred to a table which shows the number of pounds of bleaching powder required for a bleacher full of stock of that test or bleachability. So, by dividing the "pounds of bleaching powder per inch" of the liquor in the measuring tank into the total pounds of bleaching powder required for the stock in the bleacher the number of inches of liquor to be added is obtained.

In order to obtain the right amount of pulp for the above test we catch our pulp as it comes from the thickeners or separators and measure it in a small crucible which holds the equivalent of 2.5 g. air dry of the pulp at that consistency. The excess water is then squeezed out with the hand and the pulp added to the permanganate. We have found that with a little careful watching, the consistency of the stock leaving the separators varies but very little from day to day.

The permanganate solution adopted by us is made up by dissolving 0.474 g. potassium permanganate in a litre of a solution of distilled water and 20 cc. of n/1 H_2SO_4: or what amounts to the same thing, 150 cc. n/10 $KMnO_4$ plus 20 cc. n/1 H_2SO_4 and made up to a litre with distilled water. Such a solution gives, in general in a mill where the pulp is bleached, a range of figures of from 35 to 120 seconds.

One thing that will interfere with this, or any such method of control, is to vary, to any great extent, the amount of pulp added to the bleacher. This depends to a large extent on how carefully the operator is performing his duties. To date, we have not had much trouble from this cause.

It can readily be seen that, in order to obtain the figures as to the proper amounts of bleach to add to bleachers full of pulps of different "bleachability" tests a great deal of careful checking in the mill is necessary. We had hoped by this time to be able to draw up a table showing the relation between the bleachability of pulps as determined by the permanganate method and the percentage of bleaching powder required but some of our figures have not been sufficiently checked to warrant the publishing of such a table. However, we hope to be able to do so in the near future. Such a table, we realize, would make this method more universal in its use.

We have taken the opportunity of bringing this work, unfinished though it is, before the Association because it has proved for us a very good method of controlling the bleaching operation, and the results, as to economy of bleaching powder, and color and strength of pulp have been very satisfactory. We hoped that some member or members might be sufficiently interested in this method to carry on along these lines, and by an exchange of figures we would be better able to check ours. The results obtained by the careful control of this phase of the bleaching operation more than compensates for any effort expended in the establishing of the method.

*Memb. TAPPI. Chief chemist, Nashwaak Pulp & Paper Company, Ltd.

UTILIZATION OF PULPWOOD BARK FOR FUEL

Final Report of the Sub-Committee on the Utilization of Bark, Committee on Waste of the Technical Association of the Pulp and Paper Industry

By John D. Rue[1], and E. P. Gleason[2]

Acknowledgments

The committee is indebted to the following individuals and companies for their assistance in the formulation of this report, and wishes to express to them its hearty appreciation. George D. Bearce, vice-chairman of the Committee on Waste, personally assisted in making the bark press tests and has given helpful advice throughout the investigations and during the preparation of the final report. The Kimberly Clark Company, the Nekoosa-Edwards Paper Company, the Nekoosa Motor and Machine Company, and the Fiber Making Processes, co-operated with equipment, material and labor to make possible the tests on the bark presses. The Nekoosa-Edwards Paper Company, Gilchrist & Co. and H. S. Bastian placed at the disposal of the committee furnace designs, records of tests and other data which have been freely drawn upon in the preparation of the report.

Possible Methods of Utilization

In 1920 there were 6,114,072 cords of pulpwood consumed in the United States. Of this 2,875,860, or 45 per cent, was consumed rough; 2,579,255 cords, or 42 per cent of the total consumed, consisted of the northern coniferous species. It is this latter wood, particularly, which is barked by the wet drum process and which furnishes a large proportion of the bark which constitutes a problem to the mills.

The possibility of utilizing this waste in other ways than as a fuel has been studied to a limited extent. A few special uses have been found and have been applied in isolated cases. A few minor uses as developed by the Forest Products Laboratory[3] are summarized below:

In 1915 and 1916 experiments led to the commercial use of considerable quantities of *spruce and balsam* barker waste in the manufacture of *coarse car liner and wallboard*. The wallboard was built up with bark forming the inner plies and proved to be a very satisfactory product.

During the same period and for some time thereafter *spent hemlock bark* was used by certain mills in proportions up to 30 per cent of the total furnish in the manufacture of *roofing felt*.

In 1918 tests made in co-operation with a paper mill and a tannery indicated that *hemlock barker waste* could be satisfactorily *extracted for its tannin*. The needs of the tanner, however, require that the barker waste be kept as free from wood and foreign matter as possible. Due consideration must be given by the pulp mill operator to this requirement.

In all uses of barker waste as a raw material for another industry the bulk and weight of the wet material either limits its use to plants located within short distances of its origin or makes necessary the drying of the bark by means of waste flue gases or some other low-priced source of heat. Fluctuations in the supply and cost of the raw materials with which the bark must compete has caused irregular and spasmodic utilization of the latter. None of these uses, however, has found sufficiently wide application to be seriously considered in connection with a solution of the general problem.

Power and steam are always in demand at pulp mill plants, and without any radical modification in the power equipment the bark can be disposed of as a fuel, provided economic means of handling and burning it can be pointed out. The committee has concluded that use as a fuel constitutes the best solution of this problem, and has devoted its efforts to determining the most efficient methods at present available for its use in this manner.

Present Practice in Barking

During recent years mills have come to the almost universal practice, especially in the Northeast, of barking the wood in drum barkers. Usually this is done by the wet process so that the bark becomes practically saturated with water. Of 35 companies reporting to the Waste Committee the use of drums, 21 or 60 per cent, use the wet barking method and estimate the moisture content of their refuse at from 60 to 85 per cent. Nine companies bark dry and report their refuse at from 35 to 55 per cent moisture. The extreme wetness of the bark constitutes one of the chief obstacles to its utilization as a fuel.

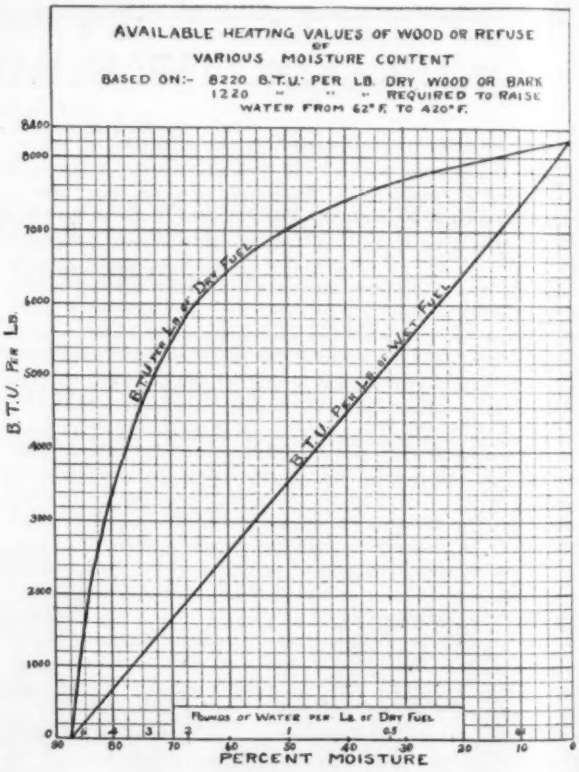

AVAILABLE HEATING VALUES OF WOOD OR REFUSE
OF
VARIOUS MOISTURE CONTENT
BASED ON:- 8220 B.T.U. PER LB. DRY WOOD OR BARK
1220 " " " REQUIRED TO RAISE
WATER FROM 62° F. TO 420° F.
B.T.U. PER LB.
B.T.U. Per Lb. of Dry Fuel
B.T.U. Per Lb. of Wet Fuel
Pounds of Water per Lb. of Dry Fuel
PERCENT MOISTURE

FIG. 1.

Net heating value per pound of fuel with varying moisture contents.

The Heating Value of Bark

The heating value of dry wood is generally given as from 7,560 to 9,000 B. t. u. per pound for non-resinous woods. The heating value of rosin is about twice that of wood, so that the resinous woods have a somewhat higher heating value depending upon the

[1] In Charge, Section of Pulp and Paper, Forest Products Laboratory, Chairman of the Sub-Committee.

[2] Chief Engineer for the Nekoosa-Edwards Paper Company.

[3] Kress, Otto. The Use of Bark for Paper Specialties, Paper, Vol. XIX., No. 4, Oct. 4, 1918; J. Ind. Eng. Chem., Vol. 8, No. 10, Oct., 1916.

resin content. The heating value of bark can be considered equal to or slightly higher than that of wood. In Table 1 are shown the heating values of the bark of several species of wood, as determined by the Forest Products Laboratory.

TABLE 1.—HEATING VALUE OF TYPICAL SAMPLES OF BARK OF VARIOUS WOODS

(Based on the oven dry weight of bark)

Species	Per cent ash	B.t.u. per lb.	Remarks
Hardwood	....	9,410	
Lodgepole pine	....	9,386	
Douglas fir	0.95	10,820	
Western yellow pine	1.30	9,275	
Jack pine	1.51	9,870	
Balsam fir	5.19	8,970	
Spruce	2.53	9,590	Hand barked.
Spruce	2.48	9,395	From a mixture of equal amounts of river wood and stored wood, wet drum barked.
Spruce	2.85	8,560	Mill refuse, mostly inner bark from drum barker.
Hemlock	....	9,500	Spent tan bark.
Hemlock	1.57	9,680	From dry drum barker.
Wood room refuse	1.75	9,140	Average.

The theoretical heating value of dry wood, as determined by Dulong's formula, is 8,220 B. t. u. per pound, based on the following average analysis of wood:

	Per cent
Carbon	51.0
Hydrogen	6.5
Oxygen	42.0
Ash	0.5

This value is conservative in comparison with heating values obtained from actual samples of mill refuse. Average samples in a hemlock sulphite mill showed the following B. t. u. per pound, dry; hemlock bark, 8,724; hemlock wood, 9,383; usual mixture of wood bark and saw dust, 9,252; hemlock rotten wood, 9,022; average 9,095.

Wood room refuse is never dry when burned. The heat absorbed by the water in changing to steam is unavailable and reduces the net heating value of the refuse. It takes 1,220 B. t. u. to change one pound of water at 62 deg. F. to steam at 420 deg. F. The curves in Fig. 1 show the net heat available per pound of fuel with varying moisture contents. One curve gives the relation based on a pound of dry fuel and the other on a pound of wet fuel. These values have been calculated on the conservative value of 8,220 B. t. u. per pound of dry fuel.

These curves indicate that it is desirable to reduce the moisture content by mechanical means to as low a value as possible economically. It is commercially possible to reduce moisture to from 50 to 55 per cent by pressing the refuse. At 50 per cent moisture the fuel as fired has a heating value of 3,500 B. t. u., is free from unabsorbed water, and is readily handled by conveyors. It can be burned with or without the addition of coal, according to furnace design and local conditions. Commercial methods of reducing the moisture to from 50 to 55 per cent have been studied as preliminary to an investigation of furnace designs for burning barking drum refuse.

Bark Presses

The industry does not appear to have a very accurate knowledge of the wetness of its bark refuse. In mills where wet barking is practiced the bark probably contains moisture in excess of 60 per cent, and frequently in excess of 80 per cent. Only 6 of the 21 companies reporting the practice of wet drum barking reported the use of bark presses. These presses as operated do not as a rule appear to reduce the moisture to below 60 per cent.

There are three makes of presses in operation. Two of these are somewhat similar in principle, consisting essentially of heavy rollers operating on a heavy metal belt conveyor. They differ chiefly in that one uses solid rollers which depend upon the application of weights and levers to develop pressure, and the other uses heavy rollers composed of independent sectional discs and depends upon the weight of these discs for the pressure. The third press is of the continuous horizontal baler type and depends upon constriction of the bark through an orifice to develop the pressure. These presses will be designated as the "solid roller," the "sectional disc roller," and the "horizontal baler" presses, respectively.

Through the courtesy of the users and manufacturers of these presses, short tests were made on each type. Representatives of the users and of the Committee on Waste of the Technical Association of the Pulp and Paper Industry, and in two cases of the press manufacturers, were present at the tests. In all the tests the pressed bark was weighed, and frequent samples of both the wet and pressed bark were taken for moisture determinations.

Tests on the Sectional Disc Press

DESCRIPTION OF THE PRESS.—The sectional disc press, Fig. 2, is equipped with 3 pairs of rolls operating in series. The upper roll in each set is made up of 8 discs, 3 inches thick, making the total face of each roll equivalent to 24 inches. The upper roll of the first section is 3 ft. in diameter, the second section 3½ ft., and the third section 4 ft. in diameter. These rolls weighed approxi-

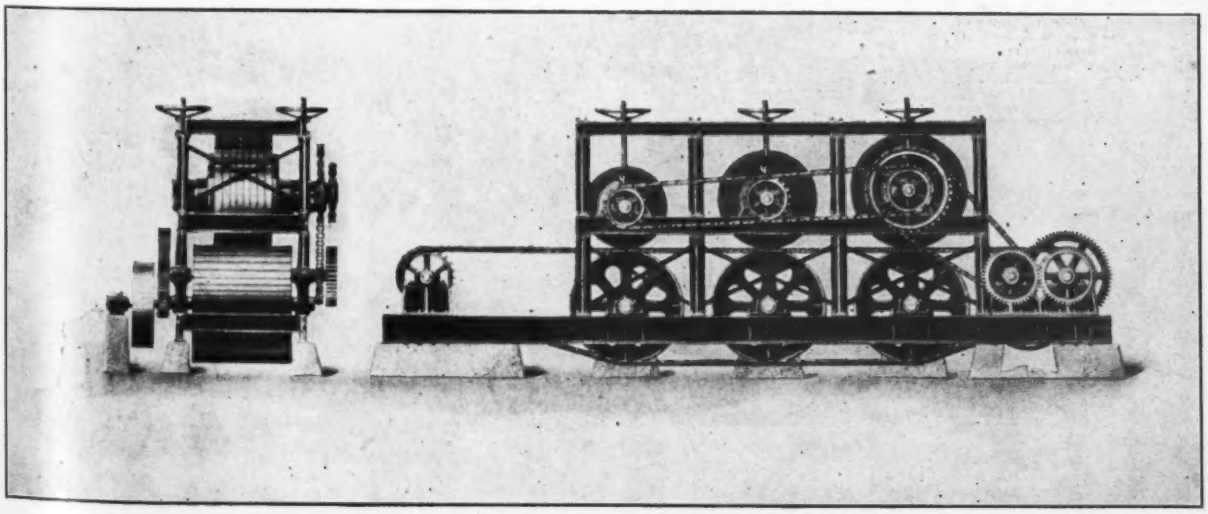


FIG. 2

Sectional disc type of bark press.

mately 5,500, 7,800, and 10,500 lb., respectively. Total pressures per inch width of face were the following: First roll, 229 lb.; second roll, 325 lb.; third roll, 437 lb. The bark is carried between the upper and lower rolls upon a metal conveyor composed of steel slats ⅜ in. thick, 3 in. wide, and 32 in. long. The travel of this conveyor is approximately 50 ft. per minute, and the conveyor has 17½ ft. of effective draining surface.

POWER.—The entire press was driven by a 15-hp. motor.

PRESSING TESTS.—Test No. 1 was made on balsam and No. 2 on spruce bark. The balsam wood was approximately 16 months old from the time of the cutting. It has been stored in the woods for a major part of this period, was shipped to the mill and unloaded directly into the mill pond supplying the wood room. The bark was rather brittle and granular, easily broken up, and contained comparatively few slivers.

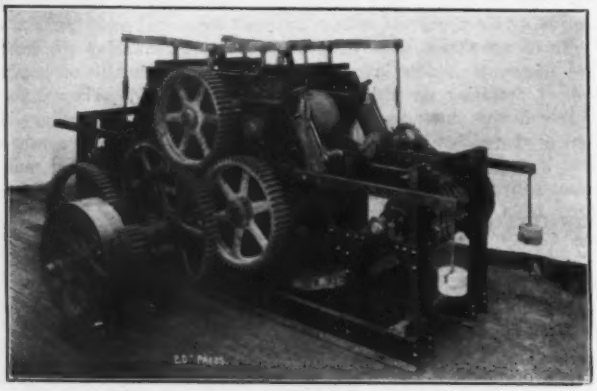


FIG. 3
Solid roller type of bark press.

The spruce wood supplying bark for the second test was cut in the winter of 1921-22 and shipped about February, 1922. It was stored in the wood yard until ready for use. The total age from the time of cutting was approximately 8 months. In the drums the bark came off in larger pieces, and was apparently more stringy than that of the balsam.

The following table gives a summary of the results on pressing:

	Balsam	Spruce
Moisture in bark going to press, %	66.3	71.3
Moisture in bark coming from press, %	56.3	60.3
Total bark pressed, lbs., oven dry	32,171	9,731
Total time of pressing, hrs.	6	4
Bark pressed per hour, lbs., oven dry	5,362	2,433
Bark pressed per hr. per in. width of roll, lbs., oven dry	223	101

Better results were apparently obtained in the balsam than in the spruce, owing to the different character of the bark. Moreover, the thickness of the mat of balsam bark passing between the rolls was greater than that of the spruce bark. This might account for some differences in the dryness of the bark coming from the press.

Tests on the Solid Roller Press

DESCRIPTION OF THE PRESS.—The solid roller press, Fig. 3, has two sets of rolls in series, each upper roll with a 10-in. face and a 20-in. diameter. The bark is carried under the rolls on a chain belt apron operated at approximately 30 feet per minute.

PRESSING TESTS.—The pressing tests were conducted under two sets of loading conditions, indicated as follows:

	1st test		2nd test	
	1st roll	2nd roll	1st roll	2nd roll
Dead weight, lbs.	800	800	800	800
Counterweight, lbs.	2,500	1,880	3,000	3,480
Total weight, lbs.	3,300	2,680	3,800	4,280
Pressure, lbs., per in. width of face.	330	268	380	428

The major part of the first test was operated on bark from spruce which had been stored in the mill yard from 16 to 18 months. The bark was removed in an American drum with the lower sector running in water. It was then conveyed to the basement, where it was forked into the press by hand. The bark was well broken up and comparatively free from knots.

The second test was divided into two periods of 15 minutes each. During the first period the bark was pumped in water suspension directly to the drainer conveyor leading to the press. The quantity of bark supplied in this manner was not sufficient to cover the press apron completely at all times. During the second period thoroughly soaked bark was shoveled onto the conveyor to the press by hand and the bark distributed on the way. Under these conditions the press carried from 1½ to 2 in. of bark under the rolls continuously. Twice during the test the press stalled owing to irregularities in the feed; otherwise, there was no indication that the capacity of the press had been reached. The bark in this test was from spruce which had been stored in the mill yard approximately two years. The logs were floated from the woods storage to the mill, and the time in the water was estimated at from 2 to 4 weeks.

The following table indicates the results obtained in these tests:

		2nd test	
	1st test	1st period	2nd period
Moisture in bark going to press, %	70.0	73.7	70.1
Moisture in bark coming from press, %	68.5	52.4	56-58.2
Total bark pressed, lbs. oven dry	2,230	613	1,875
Total time of pressing, min.	85	50	50
Bark pressed per hr., lbs., oven dry	1,784	735	2,260
Bark pressed per hr. per in. width of roll, lbs., oven dry	178	73.5	226.0

The operating company reports the following average moisture content in their bark over a period of about six weeks (Table 2):

TABLE 2—SUMMARY OF MOISTURE TESTS ON BARK MADE DURING A 6 WEEKS RUN WITH THE BALER TYPE PRESS

Date	Moisture before press %	Moisture after press %	Moisture removed %	Heating value of the wet bark calculated from Fig. 1 B.t.u. per lb.
10-12-23	69.2	56.2	13.0	2900
10-18-23	72.11	58.00	14.11	2750
10-23-23	77.00	56.50	20.50	2900
10-26-23	73.20	54.22	18.98	3100
10-30-23	72.12	58.10	14.02	2750
11- 4-23	67.00	52.00	15.00	3400
11- 6-23	85.78	55.81	29.97	2850
11- 8-23	66.98	54.51	12.47	3050
11-13-23	72.00	59.49	12.51	2600
11-16-23	72.31	53.62	18.69	3150
11-22-23	73.33	54.55	18.78	3050
11-28-23	63.98	57.88	6.10	2750
Average	72.10	55.80	16.30	2850

Note: This is spruce bark from wood in pond about 6 months—samples taken by laboratory man.

Subsequent tests made on the same press by its manufacturers developed some interesting improvements in operation. The conclusions may be summarized as follows:

1. The bark should be uniformly distributed over the apron and from 1 to 1½ in. thick to effect the greatest removal of moisture.
2. Decreasing the speed of the apron from 18.5 to 15.6 ft. per minute effects slightly better removal.
3. The weights on each press should be as heavy as consistent with practical operation. Increasing the number of rolls would probably not produce sufficient results to compensate for increased cost of equipment and power of operation.

Tests on the Horizontal Baler Type of Press

DESCRIPTION OF THE PRESS.—The press was of the continuous operating baler type, Fig. 4, in which the plunger operated horizontally. The bark was forced into a steel channel 46 in. long. This channel was of uniform cross section 12 in. square, inside measurement, for a distance of 26 in. from the hopper. The remaining 20 in. was flared slightly so that at the outlet the cross section measured 12¼ in. across. The bottom plate was flat, so that the height of the opening was 12⅛ in. The side and top

plates of the pressure channel were steel and the bottom plate iron, thoroughly reinforced. All of the plates were perforated with tapered holes ⅜ in. inside diameter and 1 in. outside diameter placed at 1¼ in. centers, for the escape of water. Above the plunger a hopper was provided, permitting a continuous feed into the press with each stroke. The plunger, driven by steel gears, oscillated 34 times per minute. The press was operated by a 25 hp. motor. The outlet of the press was provided with constriction plates, one on each side, which could be screwed in for increase of pressure.

At the time of the above test the plunger press was in the experimental stage. Since that time the press has been perfected, the compression chamber has been reduced in length, and several commercial installations have been made. These show an operating moisture content of less than 50 per cent, with a power consumption of less than 20 hp.

Pressing Tests.—The tests may be divided into four periods. During the first period of 25 minutes the sole supply of bark was handled to the drainer conveyor in slush form. A considerable stream of water was carried into the press along with the bark. The outlet of the press was not constricted, but the rate of bark flow was so low, 362 lb. oven dry per hour, that effective reduction of moisture was obtained. For the remainder of the tests the supply of bark was augmented by shoveling thoroughly soaked bark on to the conveyor, which raised the total rate of bark flow to 2,980 lb. oven dry per hour. For the second period of 45 minutes the outlet was constricted, and then for a third period of 30 minutes again opened. During the third period the pressing became less efficient, as indicated by 54.2 per cent moisture during the first 9 minutes and 59.2 per cent during the last 21 minutes. The outlet was again constricted for a fourth period of 30 minutes, whereupon the moisture content dropped to 49.6 per cent. The bark pressed was from spruce which had been stored in the mill yard approximately two years. The logs were floated from the woods storage to the mill, and the time in the water was estimated at from two to four weeks.

Subsequent tests have been made by operating mills. One mill reports three tests in which the bark leaving the press averaged 49.8 per cent dry, and the average horsepower was 25, with an average peak load of 32. The rate of pressing was 960 lb. bark oven dry, per hour. Another mill, on tests extending over 10 days, reports an average dryness of the bark of 51.1 per cent, with an average horsepower of 16.8.

Savings Possible Through Pressing

These tests indicate that it is feasible to reduce the moisture in wet bark mechanically to about 50 per cent. The operating cost of pressing, including power, repairs, etc., is estimated at from $2 to $2.50 per day for a plant barking 100 cords. This is on the assumption that the press is automatic and does not require a special attendant.

Tests made by the committee in connection with bark pressing tests gave the following data on quantity of bark per cord of rough wood. The spruce was 8 months off the stump and the balsam 16 months.

	Balsam	Spruce
Cords (net)	113.91	59.27
Wood per rough cord, natural, lb.	4,005	3,439
Wood per rough cord, oven dry, lb.	2,098	2,038
Oven dry bark per rough cord, lb.	282	164
Oven dry bark, %	13.43	8.05

One hundred cords of rough wood at a conservative estimate of 225 lb. per cord will give 22,500 lb., or 11¼ tons, of bark. The pressing would, therefore, cost 20 cents per ton of bark, or 2 to 2½ cents per cord of wood. Bark containing 50 per cent moisture has a net heating value of approximately 3,500 B.t.u. per pound of moist bark. One pound of bark is, therefore, equivalent to 0.27 lb. of coal having a heating value of 13,000 B.t.u. per lb., assuming equal efficiency in the furnace. On this basis a plant using 100 cords of wood per day would have 22½ tons of moist bark, equivalent to 6.02 tons of coal worth $7 per ton. If efficiently burned, therefore, the bark would save the plant $42.14 per day. Bark containing 80 per cent moisture has a net heating value of 700 B. t. u. The 11¼ tons of dry bark would be represented by 56.75 tons containing 80 per cent moisture, one ton of which is equivalent to 0.053 tons of coal. In this case the total coal equivalent for the day would be 3 tons. Reducing the moisture from 80 to 50 per cent increases the daily coal equivalent by 3 tons, valued at $21. Deduction of $2.50 per day to cover the cost of pressing, leaves a net saving of $5,500 per year.

On this basis, if the bark from all the 2,579,000 cords of northern conifers were pressed to 50 per cent dry, the increase in heating value would represent a fuel value of 68,000 tons of coal worth $475,000. The heating value of the pressed bark would represent $545,000, making a total possible saving to the industry of $1,020,000,

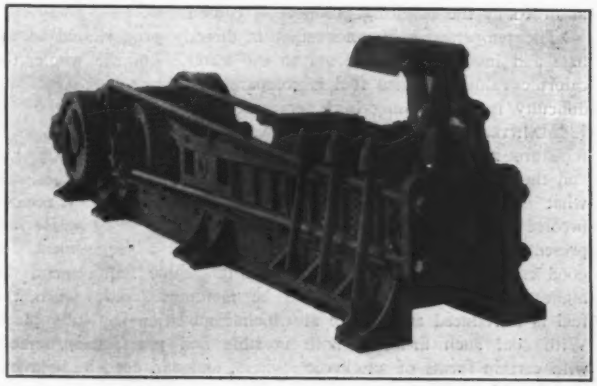


Fig. 4
Continuous Baler Type of Bark Press

provided the product could be burned with the same heating efficiency as coal.

Handling Bark in the Mill

The bark press is usually located near the barking drums. The bark can be conveyed on scraper conveyors provided with perforated drainer bottoms. In one installation brought to the attention of the committee it was necessary to transport the bark 800 feet before pressing. This was done successfully by pumping it in water suspension through a 6-in. pipe. In order to avoid difficulty with long strings, the bark was first run through a heavy chipper built on the principle of an ensilage cutter. This operation had the added advantage of delivering material to the press in such form that the moisture could more readily be removed.

Scraper conveyors are successfully used for transporting the pressed bark to the furnaces even over rather long distances.

Reduction of Moisture by Modified Method of Barking

The difficulty of removing water from bark has led to the development of a system whereby the wood goes through one or two dry drums first and then through the wet or washing drum to remove the final portions of bark and to wash the wood itself.

Barking entirely dry takes a longer time than wet barking, brooms up the bolts, and pounds the bark and dirt into the wood. The more rapid passage through the dry drums, as practiced in the modified system, harms the wood much less and takes off 75 per cent of the bark, which goes to the boiler room comparatively dry.

A smaller bark press can be used with this method and the mixture of the 25 per cent of wet bark with the 75 per cent of relatively dry bark makes an ideal fuel for the boiler room which can be burned without coal.

This method has been worked out in several cases and seems to be the best layout at this time.

The Burning of Bark

Principles Involved in Increasing the Efficiency of Combustion

Myers[4] gives the following discussion of the principles involved in increasing the efficiency of combustion.

"With waste fuels, as with other fuels burned under boilers, efficiency depends upon three conditions: (1) High temperature, (2) correct amount of air supply, and (3) complete mixture of this air with the fuel gases.

"The great difference in the burning of waste fuels is not in the requirements of combustion, but in the difficulty of meeting these requirements.

"In the first place, the temperature of combustion depends upon two factors: The calorific value of the fuel and the amount of heat absorbed by the resulting products of combustion.

"The temperature of combustion is directly proportional to the first and inversely proportional to the latter. On the whole, the calorific value of waste fuel is comparatively low; hence the first difficulty is in obtaining high temperature.

"Maintenance of High Temperature.—A larger percentage of moisture results in a greater weight of products of combustion, and these products have a higher specific heat than flue gases, and what is far more serious, calculations of the heat they remove involve also the latent heat of steam. Thus again moist waste fuel presents further difficulty in securing the first requirement for good combustion. In connection with this same requirement, the highest constant temperature can be maintained only when the fuel is introduced at the rate at which combustion is taking place. With coal such firing is both possible and practicable, notably with certain forms of automatic stokers, and can even be approximated with skillful hand firing. But with waste fuels, special study and often skill are required, on account of the great bulk and the peculiar form of the material to be handled.

"Proper Supply of Air.—Again, with reference to the second requirement, that of correct air supply, waste fuel requires different treatment from coal. The weight of air theoretically required to oxidize or to burn completely a pound of fuel depends upon the chemical composition of the fuel. Thus carbon requires oxygen equal to two and two-third times its own weight, whereas hydrogen requires eight times its own weight. Beyond this theoretical air supply, an excess of 50 to 250 per cent must be provided, according to the kind of fuel and the design of the furnace. The furnace design should be such as to provide a thorough mixing of the air with the fuel gases at a high temperature, in order to reduce to a minimum the loss due to the great excess of air otherwise required. Still another difficulty has to be met in this connection. Certain waste fuels have a strong tendency to form blowholes, due either to clinker formation or to the fuel particles being so light that they are blown from the grates and carried unburned through the flues and up the stack. In either event, blowholes lower efficiency by admitting excessive amounts of cold air to the combustion space and thus reducing its temperature seriously. The opposite trouble occurs when the grates are too heavily loaded with a moist fuel which packs and checks the flow of the draft. Special construction and skill are required to overcome these difficulties, for the occurrence of either one will utterly ruin the efficiency of the fire.

Mixing of Air and Fuel-Bed Cases.—Another set of difficulties has to be overcome in connection with the third requirement of combustion—that is, thorough mixing of the air supply with the gases distilled from the fuel. The requirement is rendered more or less difficult of satisfaction by two special factors, depending on the nature of the fuel. First, the high percentage of volatile gases evolved from many waste fuels, and, second, the moisture content.

"The tendency of the volatile matter is to flow quickly from the furnace, to become chilled below its ignition temperature by contact with boiler surfaces, and to escape unburned, thus constituting a serious loss of heat.

"How the moisture content of a fuel affects the necessity of mixing the gases is of interest. The moisture is evaporated as steam, a gas, and becomes superheated. The molecules of this non-combustible gas tend to form a separating medium between the molecules of oxygen and those of the combustible gases. Thus moisture increases the opposition to combustion and increases the need and value of assuring a thorough homogeneous mixture of the gases rising from the fire."

Bastian[5] gives the following characteristics of hogged fuel, which apply equally well to bark:

"Hogged fuel carries water to the extent of about one-half the weight, and its bulk is three or four times an equivalent weight of coal and nine times an equivalent amount of coal of an equivalent heating value.

"Instead of burning, as do coal and coke, with a glowing bed, hogged fuel burns almost entirely from the surface. Disturb the pile or turn the surface under, and the fire might be extinguished. More than that, this fuel cannot be treated as a solid but only as a gas, as it sometimes has a ratio of volatiles to fixed carbon of five to one, and this ratio averages well over three to one in the fuel as fired. These volatiles start to pass off at a temperature below the boiling point of the water in the fuel. Thus it is necessary to catch and consume the gas, which represents fully two-thirds of the total heat in the fuel. In this respect the combustion of hogged fuel is something like that of lignite."

Types of Furnace Design

Types of Furnace Design.—The various methods of meeting the conditions for waste fuel containing approximately 50 per cent moisture may be divided into three classes, all of which make use of some form of the Dutch oven. The first class is based upon the principle of the hanging arch, which forms a constricted outlet for the passage of the furnace gases into the secondary combustion chamber. This class is typified in the furnaces recently designed by the Portland Railway, Light and Power Company,[6] Portland, Oregon, to burn hogged fuel exclusively. The moisture content of the fuel used by this company varies generally from 40 to 45 per cent and sometimes rises to 50 per cent. The special furnace designed by Myers[7] for refuse from paper mills and for spent chips also belong to this type.

The second class is based upon the principle of the expanding throat between the furnace and the secondary combustion chamber. This class is typified in the furnace designed by Gilchrist for burning bagasse containing 50 per cent moisture.

In both these classes the furnaces are designed so as to focus the heat radiating from the furnace walls on the fuel bed in order to induce rapid gasification of the fuel. In both, the refuse is burned without the addition of coal.

The third class is characterized by the use of Dutch oven furnaces designed for the continuous application of some coal by means of an underfed stoker. The waste fuel is fed uniformly in relatively thin continuous layers over the coal. Either the constricted or expanding throat may be used.

There follows a brief description of at least one representative of each class, together with a test record and a discussion of the suitability of the furnace for burning bark containing 50 per cent or more of moisture.

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[4] Myers, D.M., "Economic Combustion of Waste Fuels," U. S. Bureau of Mines Technical Paper 279, 1922, pages 5-7.

[5] Bastian, H. S., "Generating Power from Waste," Electrical World, February 25, 1922.

[6] Bastian, H. S., loc. cit.

[7] Myers, D. M., "Economic Combustion of Waste Fuels," U. S. Bureau of Mines Technical Paper 279, pages 26 to 32.

Portland Railway Light and Power Co. Furnace

This furnace was designed to burn hogged fuel of the following typical proximate analysis:

Material	Douglas fir	Ash, %	0.7
Moisture, %	47.9	B.t.u. per lb. dry	8,970
Volatile combustible, %	39.7	B.t.u. per lb. available, as fired	4,050
Fixed carbon, %	11.7	Lb. per unit (200 cu. ft.)	3,900

Fig. 5 illustrates the company's latest design applied to a 500-hp. Stirling boiler. A similar design has been applied to their B. & W. boilers with equal success. The chief characteristics are the bridge wall with the hanging sloping arch which projects back of the bridge wall. An inclined grate is used, and one feed hole is provided in the roof of each furnace.

Bastian[8] submits the test record, Table 3, for this installation burning hogged fuel containing 53.5 per cent moisture.

[8] Bastian, H. S., Private Communication to the Committee, Jan. 30, 1922.

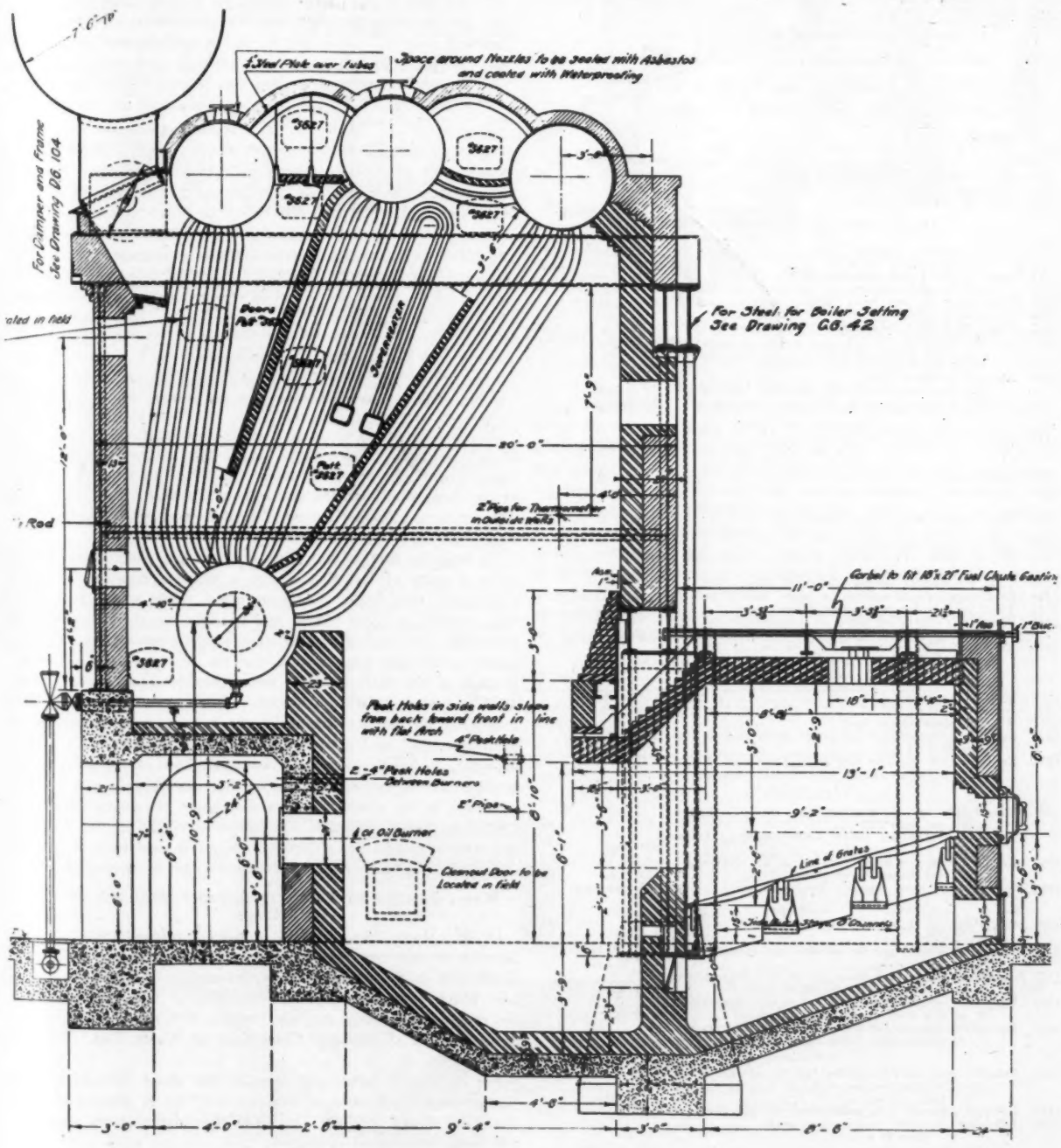
Space around Nozzles to be sealed with Asbestos and coated with Waterproofing
For Damper and Frame See Drawing DB. 104
For Steel for Boiler Setting See Drawing CB. 42
Peak Holes in side walls slope from back toward front in line with Flat Arch
4" Peak Hole
2"-4" Peak Holes Between Burners
2" Pipe
For Oil Burner
Cleanout Door to be Located in field
Line of Grates
Corbel to fit 18"x 21" Fuel Chute Casting
2" Pipe for Thermometer in Outside Walls
Peak 3827
Economizer
20'-0"
13'-1"
9'-2"
11'-0"
3'-4"
4'-0"
2'-0"
9'-4"
6'-6"

FIG. 5.

Furnace designed by the Portland Railway Light and Power Co., and applied to a 502-hp. Stirling boiler showing constricted outlet for passage of furnace gases into secondary combustion chamber.

TABLE 3—TEST OF A PORTLAND RAILWAY, LIGHT & POWER CO. FURNACE APPLIED TO A 502-HP. STIRLING BOILER OPERATED WITH HOGGED FUEL

(1) Test of one 502-hp. Stirling boiler, located at Station "L," foot of E. Lincoln Street, Portland, Oregon. To determine over-all efficiency of boiler and furnace. Test conducted by Portland Railway, Light & Power Co.

DIMENSIONS

(2)	Number and kind of boilers—1—502-hp. Stirling with B. & W. U-tube superheater.	
(3)	Kind of furnace—Extension Dutch oven.	
(4)	Grate surface (width 10', length 11'3")	112.5 sq. ft.
(5)	Water heating surface	5016 sq. ft.
(6)	Superheating surface	sq. ft.
(7)	Total heating surface	sq. ft.
	(a) Ratio of water heating surface to grate surface	44.5—1
	(b) Ratio of total heating surface to grate surface	—1
	(d) Volume of combustion space between grate and heating surface	1600 cu. ft.
	(e) Distance from center of grate to nearest heating surface	19 ft. 0 in.

DATE, DURATION, ETC.

(8)	Date—Tuesday, November 30, 1920	
(9)	Duration—5 hours (11:30 A. M. to 4:30 P. M.)	
(10)	Kind of fuel—Hog Fuel	

AVERAGE PRESSURES, TEMPERATURES, ETC.

(11)	Steam pressure by gage	176 lb. per sq. in.
	(a) Barometric pressure	29.86" of mercury
(12)	Temperature of steam (superheated)	614 degrees F.
	(a) Normal temperature of saturated steam	378 degrees F.
(13)	Temperature of feed water entering boiler	80.8 degrees F.
(14)	Temperature of escaping gases leaving boiler	545 degrees F.
(15)	Force of draft between damper and boiler	1.765 in. of water
	(c) Draft in furnace	0.595 in. of water
	(d) Blast under grate	0.049 in. of water
	Note: Draft in first pass of boiler	0.554 in. of water
(16)	State of weather cloudy	
	(a) Temperature of external air	58 degrees
	(b) Relative humidity of air entering ash pit	57 degrees

QUALITY OF STEAM

(17)	Number of degrees of superheating	236 degrees F.

TOTAL QUANTITIES

(19)	Total weight of fuel as fired	61,982 lb.
(20)	Percentage of moisture in fuel as fired	53.5 per cent
(21)	Total weight of dry fuel (Item 19 x $\frac{1-\text{Item 20}}{100}$)	28,822 lb.
(22)	Ash, clinkers and refuse	
	(a) Wet	290 lb.
	(b) Dry	288 lb.
(23)	Total combustible burned (Item 21—Item 22b)	28,534 lb.
(24)	Percentage of ash and refuse based on dry fuel	1.0 per cent
(25)	Total weight of water fed to boiler	120,600 lb.
(27)	Factor of evaporation based on temperature of water entering boiler	1.303
(28)	Total equivalent evaporation from and at 212 degrees (Item 25 × Item 27)	157,142 lb.

HOURLY QUANTITIES AND RATES

(29)	Dry fuel per hour	5674.4 lb.
(30)	Dry fuel per sq. ft. of grate surface per hour	50.44 lb.
(31)	Water evaporated per hour	24,120 lb.
(32)	Equivalent evaporation per hour from and at 212 degrees	31,428 lb.
(33)	Equivalent evaporation per hour from and at 212 degrees per sq. ft. of water heating surface	6.26 lb.

CAPACITY

(34)	Evaporation per hour from and at 212 degrees (same as Item 32)	
	(a) Boiler horse power developed (Item 34 ÷ 34.5)	911 b-hp.
(35)	Rated capacity per hour from and at 212 degrees	17,319 lb.
	(a) Rated boiler horse power	502 h.p.
(36)	Percentage of rated capacity developed	181 per cent

ECONOMY

(37)	Water fed per lb. of fuel as fired (Item 25 ÷ Item 19)	1.95 lb.
(38)	Water evaporated per lb. of dry fuel (Item 25 ÷ Item 21)	4.17 lb.
(39)	Equivalent evaporation from and at 212 degrees per lb. of fuel as fired (Item 28 ÷ Item 19)	2.54 lb.
(40)	Equivalent evaporation from and at 212 degrees per lb. of dry fuel (Item 28 ÷ Item 21)	5.44 lb.
(41)	Equivalent evaporation from and at 212 degrees per lb. of combustible (Item 28 ÷ Item 23)	5.51 lb.

EFFICIENCY

(42)	Calorific value of 1 lb. of dry fuel by calorimeter	8960 B.t.u.
	(a) Available calorific value of 1 lb. of fuel as fired	3470 B.t.u.
(43)	Calorific value of 1 lb. combustible by calorimeter	9065 B.t.u.
(44)	Efficiency of boiler, furnace and grate $\left(100 \times \frac{\text{Item 40} \times 970.4}{\text{Item 42}}\right)$	58.8 per cent
	(a) Efficiency based on fuel as fired $\left(100 \times \frac{\text{Item 39} \times 970.4}{\text{Item 42a}}\right)$	71.0 per cent
(45)	Efficiency based on combustible $\left(100 \times \frac{\text{Item 41} \times 970.4}{\text{Item 43}}\right)$	59.0 per cent

(49) Practically no smoke observed at any time during the test. Induced draft fan was run at varying speeds during test. A few clinkers passed the fan.

FIRING DATA

(50) Fuel was fed by means of chutes through holes in the oven arch. Fuel was supplied in a fairly even manner from the storage pile by means of chain conveyors.

(51) Analysis of flue gases by volume

(a) Carbon dioxide (CO_2)	12.9	per cent
(b) Oxygen (O)	6.4	per cent
(c) Carbon monoxide (CO)	0.1	per cent
(e) Nitrogen by difference (N)	80.6	per cent

(52) Proximate analysis of fuel

	As fired	Dry coal	Combustible	
(a) Moisture	53.50			
(b) Volatile combustible	33.04	71.05	71.50	per cent
(c) Fixed carbon	12.92	27.79	28.10	per cent
(d) Ash	0.54	1.16		
(f) B.t.u. per pound	3470	8960	9065	

(54) Analysis of ash and refuse, etc.

	As received	Dry ash	
(a) Volatile matter	1.52	1.53	per cent
(b) Carbon	13.52	13.60	
(c) Ash	84.36	84.87	
(d) Moisture	0.60	.....	
(f) B.t.u. per pound	1982	2002	

(55) Heat balance, based on dry fuel

	Dry fuel	
	B.t.u.	Per cent
(a) Heat absorbed by boiler (Item 40 x 970.4)	5274	58.83
(b) Loss due to evaporation of moisture in fuel	685	7.65
(c) Loss due to heat carried away by steam formed by the burning of hydrogen	692	7.73
(d) Loss due to heat carried away in the dry flue gases	1151	12.85
(e) Loss due to carbon monoxide	390	4.37
(f) Loss due to combustible in ash and refuse	11	0.13
(g) Loss due to heating moisture in air	15	0.18
(h) Loss due to unconsumed hydrogen and hydrocarbons, to radiation and unaccounted for	742	8.29
(i) Total calorific value of 1 lb. of dry fuel (Item 42)	8960	100

An efficiency of 71 per cent was obtained, with an average rating of 181 per cent. The average rating was purposely held low because a draft fan was being tested for capacities at different speeds at the same time, and the actual hourly rating varied from 75 to 330 per cent. Bastian suggests the following modifications in design better to adapt this furnace to bark:

"It must be kept in mind that the furnaces under discussion are using a grade of fuel that carries a higher percentage of volatile combustion than bark. For your use I would expect that a furnace smaller in cross section and possibly longer in proportion to the width and with a smaller combustion chamber than our furnaces would give good results, for the reason that a larger percentage of the fuel you have under consideration is fixed carbon. With a fuel as volatile as Douglas fir hog, we depend to a large extent on the radiant heat from the furnace walls to distill and gasify the fuel, and a comparatively large combustion chamber is necessary to handle the greatly increased bulk of the gasified combustible. It is interesting to note that our furnace exhibits temperatures in the combustion chamber under the tubes 800 deg. to 1,000 deg. higher than the temperature over the grates, indicating that the distillation of volatiles goes on in one part of the furnace and the main portion of the combustion in another part."

Myers Furnace for Refuse from Paper Mills and for Spent Chips

D. M. Myers has designed a special refuse-burning furnace. Several of this type were installed in a large paper mill in the South and made possible an annual saving of $50,000 worth of coal which had previously been required to burn the mill refuse. No coal was needed in the new furnace, illustrated in Fig. 6 (Cut on page 30 of "Economical Combustion of Waste Fuel," Technical paper 279).

For details of design and tests of the above furnace, refer to "Economical Combustion of Waste Fuels," U. S. Bureau of Mines Technical Paper 279, by David Moffat Myers, from which the following information is quoted:

"The refuse consisted usually of 50 per cent extracted chestnut chips, containing about 55 per cent moisture, and 50 per cent refuse from the paper mill, although these proportions varied widely with

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mill operations. The furnace operated efficiently with any mixture of these fuels, or with either fuel separately. The refuse consisted of chips, shavings, and strips of bark resulting from a preparation of the wood for making paper, and it contained considerable moisture.

"The heating values were as follows:

	Heating value per dry lb., B.t.u.	Available heat as fired, B.t.u.
Spent chestnut extract chips	8,137	2,364
Paper mill refuse and extract chips	8,629	2,823

"A complete boiler test of the old furnaces burning coal with the waste fuel gave an efficiency of 40.2 per cent; without coal the efficiency was estimated at about 25 per cent. The new furnace, tested by owners, gave 52.6 per cent to 64 per cent efficiency, as shown in the tests recorded, and without any coal whatever."

The Gilchrist Furnace

Gilchrist designs illustrate the second class of furnaces for handling refuse. Fig. 7 shows this design in connection with a horizontal water-tube boiler. The special features of this design are: (1) The large furnace volume; (2) the inclined arch and high bridge wall arranged to reflect the heat on to the fuel bed; (3) the combined furnace and combustion chamber.

The large combustion chamber gives a very slow velocity to the gas in the furnace. This results in complete ignition and combustion before the gases reach the boiler tubes. This design can be equally well applied to flat or to sloping grates or to a stoker designed for refuse service.

The test record, Table 4, illustrates the efficiency of the furnace when burning bagasse containing 48. per cent moisture. This shows a boiler and furnace efficiency of 60 per cent with a rating of 134 per cent on a 6-hr. test of a 1,000-hp. boiler. The efficiency of 76 per cent is corrected for the heat required to heat up and evaporate the moisture in the fuel. This is not ordinarily figured in coal-and-refuse tests, and the 60 per cent efficiency is comparable with usual tests.

Fig. 8 shows the changes in the design of a hogged-fuel furnace on a 300-hp. Wickes boiler from its original to its present setting, and illustrates the tendency towards larger furnace volumes. The combustion chamber was materially enlarged and the boiler throat opened up from 4 to 6 ft. This resulted in a marked increase in efficiency and capacity. Fig. 8 also shows a proposed Gilchrist furnace applied to this boiler.

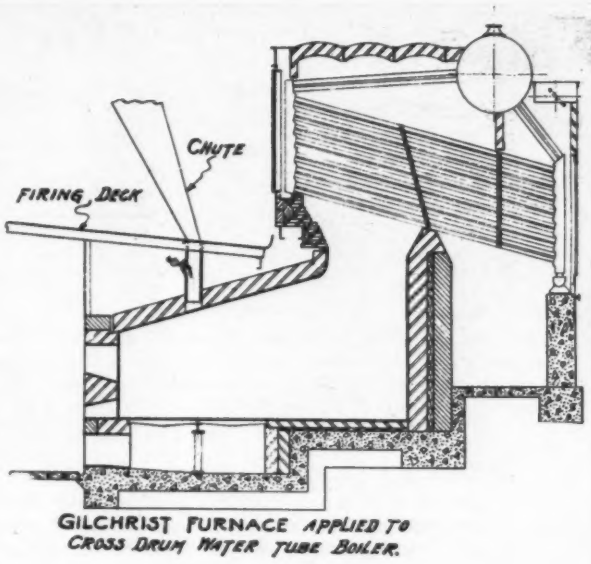

FIG. 7

Gilchrist furnace applied to cross-drum water-tube boiler, showing; Large furnace volume; inclined arch and high bridge wall arranged to reflect heat on fuel bed; combined furnace and combustion chamber.

Coal and Refuse Furnaces

The third class of furnace is illustrated by the installation (Fig. 9) at the Nekoosa plant of the Nekoosa-Edwards Paper Co., and is designed to burn coal and refuse or coal only. This installation was fitted to a crowded condition in an existing plant and does not represent ideal conditions.

It consists of an 8 by 9-ft. forced-draft underfeed stoker with a dutch oven setting applied to a 400-hp. B. & W. boiler. It has a furnace volume of 400 cu. ft. and a combustion chamber volume of 480 cu. ft. The furnace is designed to feed some coal continuously and coal only when the refuse supply it short. In actual operation 10 per cent by weight is the minimum coal used to keep the grates covered and to prevent them from burning out. Two

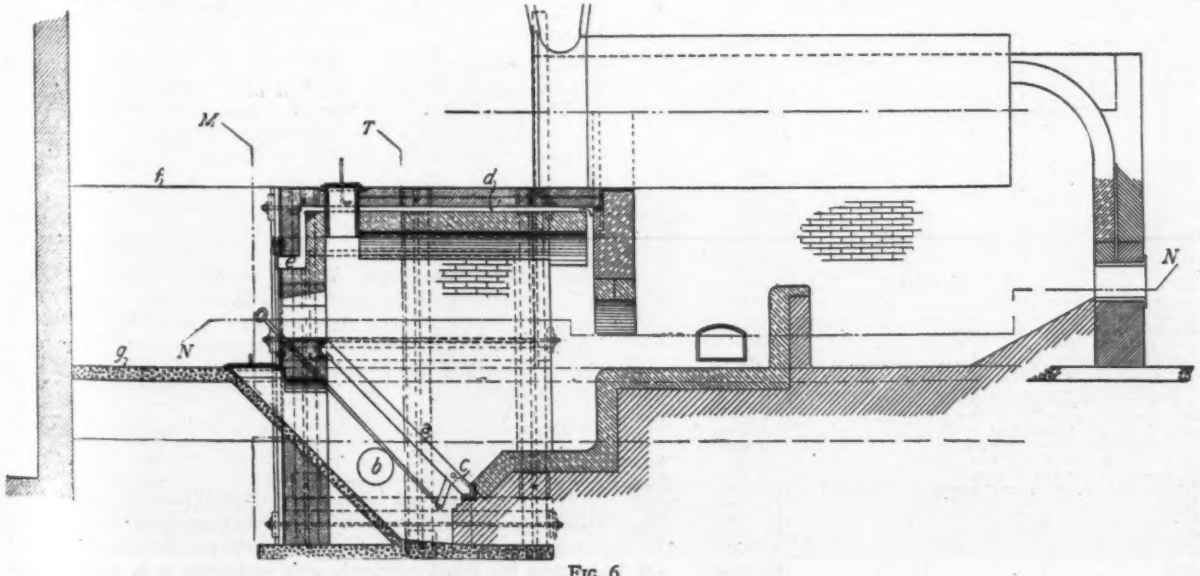

FIG. 6

Furnace designed by D. M. Myers, for burning refuse from paper mills and spent chips. Reproduced from "Economic Combustion of Waste Fuel," by Myers; Technical Paper 279, U. S. Bureau of Mines.

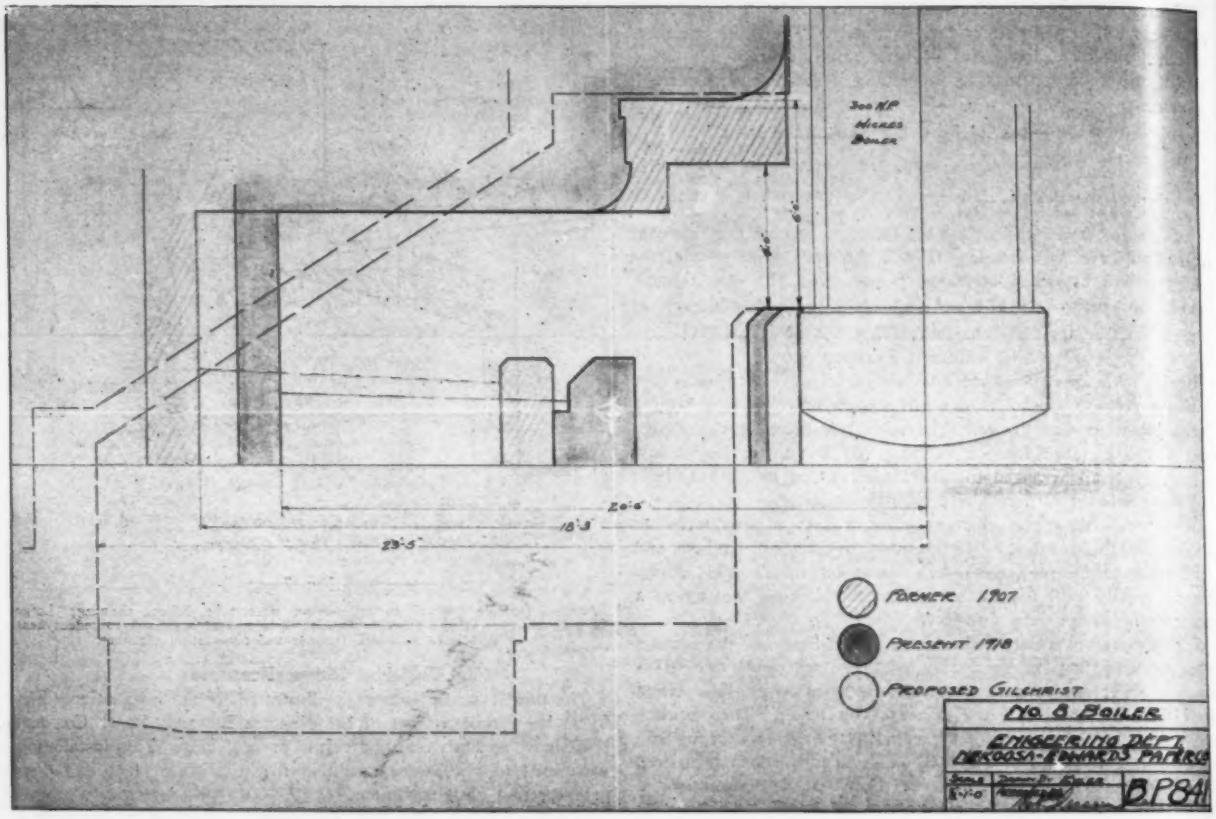

FIG. 8

Furnace operating on hogged fuel, as applied to a 300-hp. Wicker boiler, Showing changes in design from original to present setting.

TABLE 4—TEST OF A GILCHRIST FURNACE AND A 1,025-H.P. EDGE MOOR BOILER OPERATED WITH BAGASSE

Test Number		4
Kind of Furnace		Gilchrist
Water Heating Surface		10,250
Date		Mar. 15, '22
Duration Hours		6
Fuel		Bagasse
Steam Pressure Gauge	Pounds per Sq. Inch	130.4
Steam Temperature Actual	Deg. Fahr.	483.0
Normal Temp. Saturated Steam	Deg. Fahr.	355.85
Feed Water Temperature	Deg. Fahr.	205.9
Flue Gas Temperature	Deg. Fahr.	417.6
Room Temperature	Deg. Fahr.	88.5
Superheat	Deg. Fahr.	127.15
Factor of Evaporation		1.122
Ash Pit Blast	Inches of Water	.49
Furnace Draft	Inches of Water	.0828
Flue Draft	Inches of Water	.688
Total Bagasse as Fired	Pounds	108,069
Free Moisture in Bagasse	Per Cent	48.5
Total Dry Bagasse	Pounds	55,656
Total Water Fed	Pounds	254,244
Total Equivalent Evaporation	Pounds	285,212
Bagasse as Fired per Hour	Pounds	18,011
Dry Bagasse per Hour	Pounds	9,276
Equivalent Evaporation per Hour	Pounds	47,535
Equiv. Evap. per Hour per Sq. Ft. H. S.	Pounds	4.64
Boiler Horse Power Developed		1,378
Rated Boiler Horse Power		1,025
Rating Developed	Per Cent	134.4
Water Fed per Pound Fuel as Fired	Pounds	2.35
Water Evaporated per Pound Dry Fuel	Pounds	4.57
Equiv. Evap. per Pound Fuel as Fired	Pounds	2.64
Equiv. Evap. per Pound Dry Fuel	Pounds	5.13
Calorific Value of 1 Pound Dry Bagasse	B.t.u.	8,300
Efficiency of Boiler and Furnace	Per Cent	60.0
Efficiency "B" (E. W. Kerr Corrected for Moisture)	Per Cent	76.3
CO_2	Per Cent	12.16
CO	Per Cent	0.0
O_2	Per Cent	8.89
Excess Air	Per Cent	73.1
Sucrose (From Daily Report)	Per Cent	6.36
Fiber (From Daily Report)	Per Cent	45.14
Ash (From Daily Report)	Per Cent	.86

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	B. t. u.	Per Cent
Heat Absorbed by Boiler	2561.86	60.0
Heat Lost in Free Moisture	570.36	13.3
Heat Lost in Moisture of Formation	346.85	8.12
Heat Lost in Dry Flue Gases	367.6	8.58
Loss Due to Unburned CO	0.0	0.0
Radiation and Unaccounted for	427.83	10.0
Total Heat Content of One Pound of Bagasse	4274.5	100.00

feed holes are provided in the top of the Dutch oven furnace in order to facilitate uniform spread of the hogged fuel.

The advantage of this type of setting is its flexibility in handling coal or coal and hogged fuel, regardless of the moisture content of the latter. This is particularly advantageous in the average paper mill, where the wood room runs by day only, but where the demand for steam is over a 24-hr. period.

The flowmeter chart, Fig. 10, shows a typical operation of this setting and clearly indicates the effect of changing from hogged fuel and coal to coal only. The test recorded in Table 5 is typical of the operation of the furnace. In figuring the efficiency of the hogged fuel the average plant efficiency was used in calculating evaporation due to the coal fired, the balance of the evaporation being credited to the hogged fuel.

Summary

The investigations of the committee have established the following conclusions:

No. 1

1. The best method for disposing of bark from pulp mill operation is to burn it as a fuel. Minor uses are being made of bark as a raw material in various manufacturing operations, but none of these has found sufficiently wide application to be seriously considered in connection with a general solution of the problem.

TABLE 5—TEST OF A FURNACE DESIGNED TO BURN COAL AND REFUSE OR COAL ONLY. NEKOOSA PLANT, NEKOOSA-EDWARDS PAPER COMPANY

1	Date	11-22-22	.....
2	Duration	4.83 hr.	.....
3	Boiler No.	8	.....
4	Boiler make	B. & W.	.....
5	Boiler rating H.P.	400	.....
6	Type of furnace setting	Dutch oven	.....
7	Dimensions of grate	8 x 9	.....
8	Type of stoker	Type "E"	.....
9	Heating surface	4,000	.....
10	Weight of fuel as fired	Hog = 23,700#	Coal = 2,399#
11	Percentage of moisture in fuel	47.92	9.81%
12	Total weight of dry fuel fired	12,300#	2,160# @ 9.7 = 20,950# steam
13	Total weight of dry ash		
14	Percentage of dry ash to dry fuel	.....	.....
15	Total weight of water fuel to boiler	.....	.....
16	Total weight of water actually evaporated	94,400	.....
17	Average quality of steam	.....	.....
18	Factor of evaporation	1.001	.....
19	Equivalent evaporation from and at 212° F.	94,490	— 20,950 = 73,540#
20	Dry fuel consumed per hour	2,550	.....
21	Dry fuel per hour per sq. ft. grate surface	35.4#	.....
22	Evap. F & A 212° F./sq. ft. htg. surface/hr.	.....	.....
23	Average boiler gage pressure	127#	.....
24	Temperature of water fed to boiler ° F.	252#	.....
25	Average temperature of flue gas ° F.	595#	.....
26	Average windbox pressure	.20	.....
27	Average draft over fire	.09	.....
28	Average draft in breeching	.27	.....
29	Average flowmeter reading H.P.	.....	.....
30	Percentage rating by flowmeter	146%	.....
31	Boiler H.P. @ 34.5 lbs. F & A 212° F. per H.P. hour	568	.....
32	Percentage of rating developed	142	.....
33	Water evaporated per lb. of fuel as fired	.....	.....
34	Equiv. evap. F & A 212° F. per lb. of fuel as fired	3.1	.....
35	Equiv. evap. F & A 212° F. per lb. of dry fuel	5.98	.....
36	Equiv. evap. F & A 212° F. per lb. of combustible	.....	.....
37	Percentage of CO_2 in flue gas	13.6	.....
38	Percentage of O in flue gas	6.3	.....
39	Percentage of CO in flue gas	.6	.....
40	Heating value of dry fuel	8,500	.....
41	Heating value of combustible	.....	.....
42	Efficiency of boiler and grate	68.2%	782

Remarks: Furnace about half full—fuel fed as consumed—air controlled to give best gas results. Combustion good, blast about .20" but not enough to disturb bed. Damper open just enough to take care of gases. Furnace doors open about 5" in order to get best CO_2 results. Sparks plentiful at first pass., but very moderate at second.

No. 2

2. It is commercially practical to press wet bark to a 50 per cent moisture content, and the advantages of the low moisture content more than offset the original and maintenance costs of the bark press. The saving in the cost of coal and the conservation of coal warrant installation of presses in every plant operating wet barking drums.

No. 3

3. The ideal method of operating barking drums is to remove all the bark possible in dry drums and to finish the barking in wet drums. In this way the amount of bark to be pressed is greatly reduced.

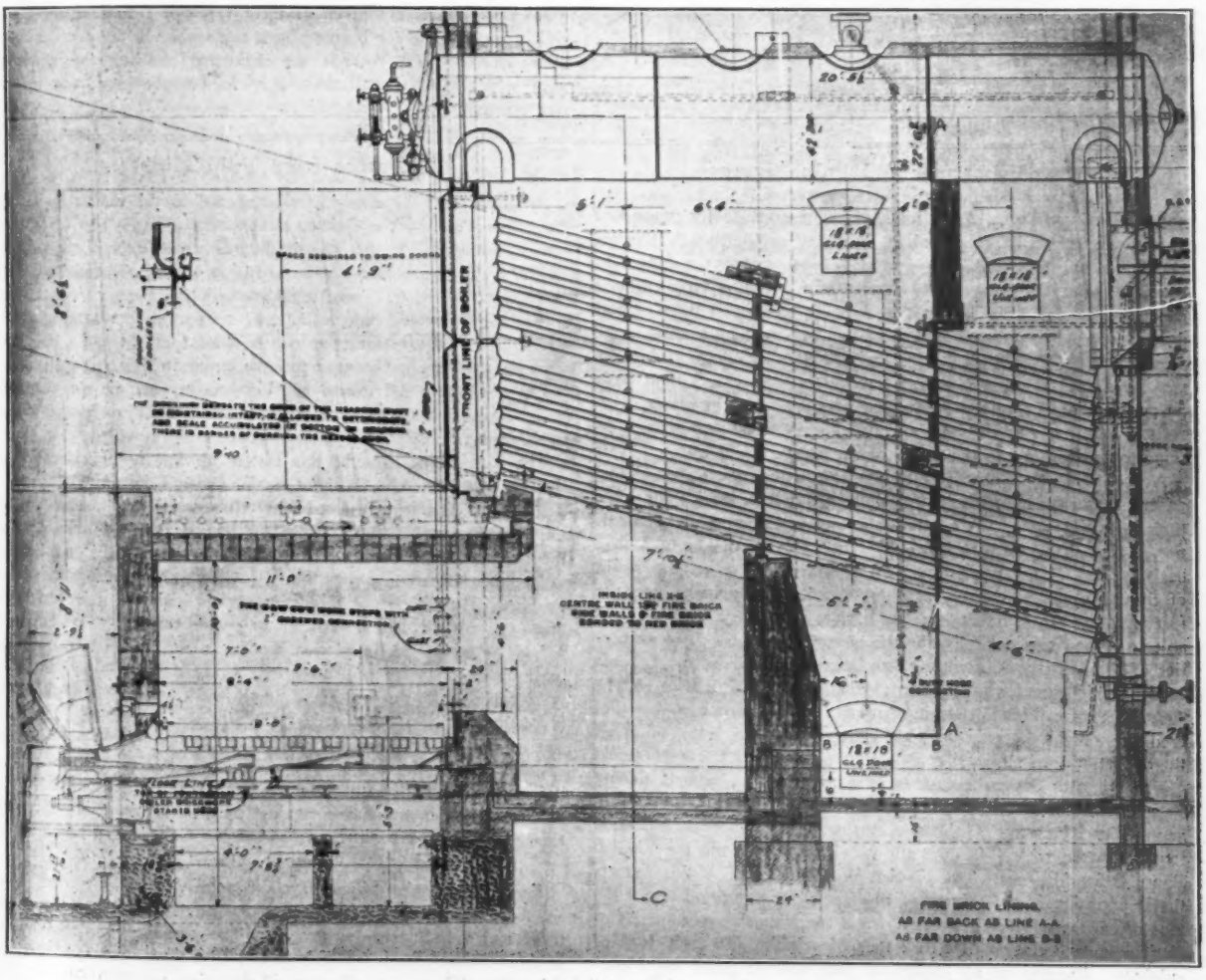

FIG. 9

Furnace designed to burn coal and refuse or coal only, fitted to a crowded condition at Nekoosa plant, Nekoosa-Edwards Paper Co. equipped with forced draft underfeed stoker and applied to a 400-hp. B. & W. boiler.

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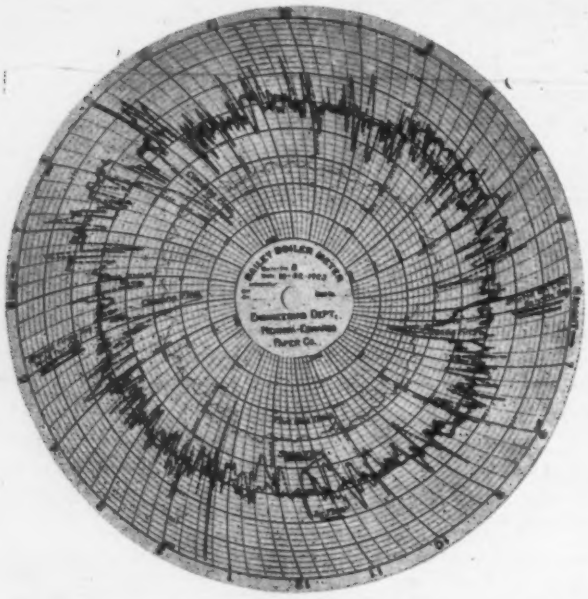

FIG. 10

Flow meter chart, showing a typical operation of the furnace, Fig. 9, at Nekoosa plant. Furnace was operated from 5 a. m. to 5:45 p. m. on hogged fuel with coal; from 5:45 p. m. to 5 a. m. on coal alone.

No. 4

4. Any other methods which may result in a further reduction of the moisture and consequently in an increase in the fuel value of bark should be investigated. The possibility of drying by the use of waste boiler gases especially warrants attention.

No. 5

5. It is not at all necessary to burn coal with refuse when the latter has a moisture content of 45 per cent or less. It is good practice to burn coal with refuse above this moisture content, especially if the bark is dense and closely packed. The regular burning of coal steadies the fire in the furnace and helps to maintain the temperature necessary for complete combustion of the refuse.

No. 6

6. Where the refuse supply is irregular or intermittent it is commercially practical to burn in the same furnace coal and refuse together so long as the refuse supply is available, and coal alone when the refuse supply is low.

No. 7

7. Descriptions are given of three types of furnace installations which are suitable for burning bark containing 50 per cent or more of moisture. Test records are presented showing the efficiency with which these installations may be operated on bark in this wet condition.

Swedish Paper and Pulp Figures

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., April 16, 1924.—The markets for paper and pulp continued to be depressed in February, and although the demand for pulp was fairly good, prices were low says a report to the Paper Division of the Department of Commerce from American Consul at Helsingfors on the Swedish paper and pulp market during February. The report continues: A slight increase in price was noticeable for chemical pulps, and as the demand for this class was good the sellers are said to have already disposed of at least 50 per cent of the yearly production of sulphite. The situation in respect to paper was the least encouraging as prices for paper continue to be very low in the world markets.

At the end of February the Leppakoski Fabrikers Aktiebolag paper mill suspended payments. While it has been known for some time in business circles that this company was in financial difficulties, it was believed that it would succeed in getting onto a firm basis again. The suspension is said to have come as a final result of the high interest rates, but another reason may have been the fact that the mill did not have up-to-date machinery, and was unable to compete successfully for the western markets. The properties of the Leppakoski company has been purchased by the Laskela Bruks Aktiebolag for the sum of 14,000,000 Finnish marks ($351,400). The Nordiska Foreneningsbanken, which was one of the chief creditors of the Leppakoski Fabrikers Aktiebolag, is to be given the opportunity of purchasing at least two-thirds of the capital stock.

The Finnish Paper Mill Association reports its exports during February as 9,142 tons of paper compared with 9,901 tons in January. The Kymmene Aktiebolag during February exported 4,360 tons compared with 4.096 tons the previous month, and the Finnish Paper Office 510 tons. The Finnish Wood-pulp Mill Union reports the exportation of 3,339 tons of mechanical groundwood and 1,170 tons of cardboard during February, and the Finnish Cellulose Association the exportation of 10,082 tons of sulphite and 2,436 tons of sulphate. Exports of all classes of pulp and of paper were considerably less during February than during January or the same month last year. This decrease was due to the serious ice conditions prevailing in the Gulf of Finland and the Baltic.

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Fumes from Pulp Mills

As there nave been enquiries in regard to the recent legislation carried through by the Quebec government in regard to fumes and odors from pulp mills, it will be interesting to explain the purpose of the legislation. The new measure, it will be remembered, is to the effect that where a municipal council has given its consent for the establishment of pulp mills, that consent cannot afterwards be withdrawn, and no injunction can be taken out against a pulp mill restraining it from operation on the grounds that it constitutes a public nuisance. All claims on this ground must be for damages. This legislation, however does not affect the provisions of the health laws.

The case which brought this matter up for the consideration of the Cabinet was that of the Canada Paper Company at Windsor Mills, Que. A resident named Brown obtained an injunction against the Company restricting it from the manufacture of soda pulp on the ground that the fumes from the mill constituted a public nuisance and militated against the enjoyment of the property owned by him. The Government in carrying through the new legislation takes the ground that it shall not be within the powers of any individual to secure an injunction against a mill after that mill has been assented to by the municipal council, because by so doing workmen may be thrown out of employment and capital legitimately invested may be jeopardized. Whether the legislation is retroactive or not and whether, therefore, the Canada Paper Company can resume the manufacture of soda pulp, is not stated. The new legislation sets up an important precedent because there have been a number of other complaints against pulp mills which might at any time set up a serious situation had not the Government taken action.

The plant of the Miami Cycle Company at Middletown, Ohio, has been sold to the Lawrence Bag Company. The plant covers three and a half acres of ground. The property was sold by the Miami Cabinet company which purchased it a year ago at a receivership sale. The appraised value at that time ws $220,000 which included the mchinery. The price paid by the Lawrence Bag Company has not been disclosed.

Section of the

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AN HISTORICAL DEFENSE OF BOOKKEEPING*

By HENRY RAND HATFIELD

I am sure that all of us who teach accounting in the universities suffer from the implied contempt of our colleagues, who look upon accounting as an intruder, a Saul among the prophets, a pariah whose very presence detracts somewhat from the sanctity of the academic halls. It is true that we ourselves speak of the science of accounts, or of the art of accounting, even of the philosophy of accounts. But accounting is, alas, only a pseudoscience unrecognized by J. McKeen Cattell; its products are displayed neither in the salon nor in the national academy; one finds it discussed by neither realist, idealist nor phenomenalist. The humanists look down upon us as beings who dabble in the sordid figures of dollars and cents instead of toying with infinities and searching for the elusive soul of things; the scientists and technologists despise us as able only to record rather than to perform deeds.

We suffer perhaps in silence, even, as Carlyle says, "consuming our own choler as some chimneys consume their own smoke," perhaps in public denying that we suffer at all, but here—in a meeting not of accountants, but of university instructors in accounting—we can admit among ourselves that at times this academic attitude does get under our skins.

The contempt for accounting is not limited to university circles, but is well-nigh universal. It is evidenced by ignorance of the subject, by condescension toward its devotees, by their exclusion from polite literature.

Illustrations of Ignorance

And how abysmal that ignorance! I give two instances. The university speaker who said, "If you do so and so your ledger (speaking figuratively of course) will show a debit balance." Would he have spoken of an equation with unequal numbers? And the distinguished writer in the October *Atlantic*, the thesaurus of culture, supposedly barred to academic solecisms, who says, "In most sections of America the fact that a man or woman has been divorced . . . is something to be set down . . . on the debit side of the account," ignorant that likely as not a debit (as for instance in the bank account means the imputation of additional value—which I take it is quite contrary to what Mrs. Gerould intended.

But the contempt for accounting is even more clearly shown by a constantly repeated phrase, a phrase which of all phrases is to me the most exacerbating—because of the combination of ignorance and supercilious condescension. This phrase, which I could quote from uncounted sources, is: "That is a mere bookkeeping entry." One might as well say, "that is a mere algebraic equation," or, "That is a mere statement of discovered fact," or, "That is the formulation of a mere axiom. "Mere truth, mere fact, mere sanctity, mere virtue. Do you wonder that I lose my temper every time I see the phrase? Of course one may make a misstatement in bookkeeping, just as one may lie either in Greek or in German: But that merits some adjective more invidious than "mere."

And remember how accounting has been slighted in literature. The public eye has generally, both in history and in fiction, been turned on the man on horseback, but nevertheless at times there comes upon the stage a more prosaic figure. Great masterpieces have grouped themselves about a scholar as Faust, about a carpenter as Adam Bede, about a manufacturer as in Les Miserables, about a sailor as Robinson Crusoe, about courtesans, thieves and beggars beyond recital. Even a horse and a dog have been made the heroes in "Black Beauty" and in "Rab and His Friends." But never, so far as I recollect, has a bookkeeper been made the hero of novel, play or poem. The bookkeeper is not even honored by being made a noteworthy villain.

Long ago Sir Roger de Coverly assumed that "little that is truly noble can be expected from one who is ever poring on his cashbook or balancing his accounts." Literature has maintained this attitude ever since, and the bookkeeper has reached his apogee in the gentle and pathetic figure of Tim Clerkenwell. Compare him for a moment with the military hero. The latter appears mounted on a horse, leading, to the music of bugle and drum, his martial columns in charges against the foe, brandishing a reeking sword, and wearing on his brow the victor's wreath of laurel. The bookkeeper too is mounted, but on a quadrupedal stool, he too marshals columns, but of figures to the accompaniment of a clicking Burroughs, his charges are those on the debit side of the ledger, his brow is encircled but by a green eye shade, he brandishes only the humble rival of the sword, guiltless doubless of his country's blood, and incarnadined only with Carter's cardinal ink.

But it is not good for a man's soul always to suffer under the inferiority complex. Let us no longer bear in humility the lash of contumely. Let us face our contemners, be they classicists, philosophers or scientists.

> "No matter if he is a houn'
> They gotta quit kicking my dog aroun'."

Entitled to Respect

Let us boldly raise the question whether accounting, the late

*A paper read before the Amer. Assn. of University Instructors in Accounting, Dec. 29, 1923. (From Journal of Accountancy.)

[2] The authority for the following statements is found in Meriwether, Our Continental Curriculum, pp. 188, ff.

[1] H. Staigmüller, "Lucas Paciuolo," "A biographical sketch" in "Zeitschrift für Mathematik und Physik." Bd. 34, Historical Literary Division, pp. 81-102, 121-128.

claimant for recognition as a profession, is not entitled to some respect, or must it consort with crystal-gazing, sociology, chiropractice, pedagogy and palm-reading.

Three elements, if not conclusively proving, at least presumptively establish, respectability. These are, first, parentage and lineage; second, the company one keeps; and, third, the services which one renders the community. Let us examine accounting in these aspects.

Without raising the question as to accounting in antiquity, we look upon the Franciscan monk Paciolo as the father of modern accounting, as his "Summa," published in 1494, which was the first printed work dealing with algebra, also contained the first text on bookkeeping, a slender tractate entitled "De Camputis et Scripturis."

Not much can be said of Paciolo, aside from his writings, but his academic credentials are flawless. He was an important if not a great mathematician. His first appointment to teach in a university was at Perugia. In less than a year his request for an increase of salary was granted. The reason stated in the official records has a singularly modern sound. It reads: "because he has already taught for two months and has shown himself to be a man of highest learning, and because it appears that he manifestly can not live on such a meagre stipend."

Again in less than six months he was promoted, this time with a more permanent tenure as well as increase of salary. Soon afterward he left the university, probably devoting himself to the study of philosophy and theology. He returned to Perugia in 1487, and while he had previously signed himself "Brother Luke," in his later writings he was wont to describe himself as a "humble professor of sacred theology." He held many other university positions, at various times teaching at Naples, at Pisa, at Florence and at Bologna. He ended his career with his highest honor, for in 1514 Pope Leo X appointed him professor of mathematics in the "Sapienza" at Rome, a position in the "university of the highest standing in all Christendom."

In 1496 he was called to Milan by the reigning duke, Ludovico il Moro, whose court was a center of light and learning, and to be established there was a signal honor. Adams in China, Hollander in Porto Rico, Bogart in Persia, Paciolo in Milan—all indications of deserved recognition of professional eminence—all doubtless to be kept in mind for at least 427 years.

At Milan, Paciolo was brought into contact with many prominent persons, the most significant being Leonardo da Vinci, perhaps the most eminent man of his day. Between the two there grew up an intimate friendship. Da Vinci himself tells that he hastened to buy a copy of Paciolo's Summa as it came off the press, and he collaborated with Paciolo on a later book, the "Divina Proportione," for which Paciolo furnished the text and Da Vinci the illustrations. Honor indeed for a university professor! Would not the most eminent mathematician of today rejoice if the greatest man of his time, say Roosevelt or Henry Ford, had hastened to buy one of his treatises (even though it contained the adventitious attraction of some chapters on bookkeeping)? Would not even one so eminent as William James have been flattered if in his psychology the somatic reactions of the emotions could have been illustrated by the master hand of the creator of Mutt and Jeff?

I need not outline to you the nature of Paciolo's treatise, with which you are familiar, at least through Geijsbeek's somewhat paraphrastic translation. Have any of you not read this you will be interested in it, not merely as a piece of technical literature, but because of its quaintness of expression, its naive attention to detail, its exuberance of piety, its flavor of mediævalism.

A Dominating Book

It is seldom the case that a first book on a subject has so dominated its literature as was the case with Paciolo's "De Computis et Scripturis." It is nearly true to say that for a hundred years the texts appearing in England, France, Germany, Italy and the low countries were "at the best revisions of Paciolo, at the worst servile transcriptions without even the courtesy of referring to the original author." But further than that many little matters of bookkeeping technique were followed for at least four centuries, merely because they were inculcated by Paciolo, persisting like buttons on our coat sleeves, long after their significance had disappeared. I need not mention these to you, but may I refer to a peculiar instance relating rather to a matter of general form?

Whether it was because of his churchly connections or because it conformed to the customs of his day, Paciolo's book is replete with gems of moral and religious advice. I know not how it may be in the higher branches, such as sociology or Americanization—but in the elementary text-books, such as algebra or chemistry, we do not today find the thread of the discourse interrupted by bits of proverbial philosophy or moral exhortation. But in bookkeeping this has continued down until today. I might cite instances from many of the high school texts used today, from practically all used so lately as ten years ago. But let me take a single extreme example. Soule's book is still in vogue in this country. At the foot of nearly every one of his 749 pages, he has a line quite in keeping with Paciolo. The statement in the earlier writer, "Who does nothing makes no mistakes, who makes not mistakes learns nothing," is matched by Soule's "Our greatest glory is not in never falling but in rising every time we fall." "It costs more to make a good merchant than to make a doctor of laws," is matched with "Experience is not a free school, we all pay for our tuition." But even a fifteenth-century monk can not rise quite to the level of the twentieth-century practical American who tells us "The only amaranthine flower on earth is virtue, the only lasting treasure truth." Bookkeeping was spread throughout the world by a series of plagiarisms and imitations of Paciolo. The habit of imitation became so fixed that in bookkeeping it has persisted throughout the centuries, and even the foibles of Brother Luke are reproduced in the treatises of today.

Let those who vaunt the superior merits of other disciplines remember that this first presentation made by Paciolo was not crude and incorrect but contains the essentials of bookkeeping as we know it today, despite the fact that it was written at a time when chemistry partook of the vagaries of alchemy, biology was a weird collection of errors, and medicine had more in common with the medicine man than it has even today. It may be well to see how this discipline—I do not venture to call it science—compares in its antiquity with the more arrogant natural sciences. In neither case do I go back to the feeble beginnings and adumbrations of learning but compare the position of bookkeeping, as it was first formulated in print by a university professor, with the formulation of natural sciences—not by some dim groper in far-off antiquity—but by the first vice-president of Harvard College. A comparison, thus made, is, I am sure, more than generous to the natural sciences, despite their illiberal attitude toward the social sciences with which, in general, they admit of no kinship.

Charles Morton, who, like Paciolo, was at once distinguished teacher and cleric, was brought to Harvard from England almost two hundred years after Paciolo had formulated bookkeeping. If not professor, he was at least made vice-president, and his work on science was used as a text-book in the college.[3]

But he explained the problem of the migration of birds by saying that each autumn they flew to the moon, 200,000 miles distant, a two months' journey, and in his text-book, earthquakes are explained as follows: "They come from choking up of wind below, fermenting, bursting out, causing trembling and strokes." Or dropping into verse:

> "In subterranean caverns winds do frolic
> When Mother Earth is troubled with the colic."

How marked a contrast to the teachings of the geologist at the University of California. It is told that when he appeared in court as an expert witness, the opposing lawyer foolishly attempting to

ridicule his pretension of knowledge, said: "And do you pretend to know what is going on in the bowels of the earth?" To this the geologist replied: "I do not know that the earth has any bowels."

When Science was Ignorance

Only two hundred years ago science—in the leading American college—was a futile and ludicrous display of ignorance. More than four hundred years ago, in the very first book published on the subject, bookkeeping was outlined in a form which still prevails around the entire world. Can not bookkeeping claim an honorable and ancient lineage? Is it indeed an upstart as compared with geology, and chemistry, and landscape gardening, and social psychology, and business English, and olericulture, and otorhinolaryngology, and other cherished subjects of the university curriculum? Founded, like San Francisco, by a follower of St. Francis of Assisi, cradled in mathematics, with algebra as a twin, established under the aegis of a great university—surely this is an origin sufficiently academic to give respectability to this our "houn' dog." Perhaps I should adopt the language appropriate to the kennel and speak of bookkeeping as having been sired four hundred years ago by a monk, and today damned by thousands of university students, and yet, despite certain questions which the frivolous might raise to a celibate paternity and the extremely puzzling biological enigma of such a multiple maternity, bookkeeping is thoroughly respectable.

But many a house founded by a great man has degenerated and the descendants have been of quite inferior clay. Has the later entourage of bookkeeping been made up of a fair number of respectable persons?

The second book on bookkeeping was also written by a man of distinction, Grammateus or Schreiber. He, like Paciolo, combined algebra and bookkeeping, and his book, dated 1518, was the first work published in Germany dealing with either of these subjects. On the authority of Cantor, he stands, as a mathematician, unquestionably in the front rank of his time.

Almost immediately following Grammateus was Jerome Cardan, that picturesque scapegrace and brilliant scholar, astrologer, physician, scientist, mathematician, professor of medicine first at Pavia, later at Bologna. He, too, wrote a book combining algebra and bookkeeping. This work, says Richard Garnett, marks an era in the history of mathematics, being the first in which the principle of cubic equations was fully explained. Everett says it is one of the most valuable contributions to the literature of algebra. As a physician he was so eminent that he was called to Scotland, no mean journey in those days, to attend an archbishop; he was famous enough as an astrologer to visit the court of Edward VI to cast the King's nativity. But his chief claim to distinction is his general scientific attitude, so far in advance of his times. Says Garnett: "Alike intellectually and morally, Cardan is one of the most interesting personages connected with the revival of science in Europe. He possessed the true scientific spirit in perfection. As a mathematician he effected most important advances, and to complete the catalogue of his accomplishments he is no contemptible poet." And to add picturesqueness to his career he became involved in difficulties, was addicted to gaming, imprisoned for debt, banished from Milan, was later deposed from his professorship, imprisoned, released, prohibited from further teaching, but spent his latter years in Rome as a prisoner of the pope."

Out of the first six writers three are thus seen to be men of eminent distinction, in fields other than that of bookkeeping, as judged by persons who are not themselves particularly interested in bookkeeping. Surely the early days—if not the unknown origin of bookkeeping—are sufficiently respectable so that we need not be ashamed.

Few Writers on Bookkeeping

Extending somewhat the field of survey we find that Brown lists only 150 names of writers on bookkeeping before 1800. But even the reduced list of those who have reputations in fields other than bookkeeping is too long to repeat in detail. These are not a group of narrow specialists. One finds there authorities on algebra (as is to be expected), on navigation, on optics, a commissioner to settle the foreign exchange, the author of the French code of 1763 (who not only had this great code named after him, the Code Savary, but is perhaps even more distinguished by having had seventeen children who also bore his name) astronomers, a French grammarian, an authority on gunpowder and the historian of the Baptist church. To find these names in the "Encyclopedia Britannica" one does not look under accounting or bookkeeping—these articles are scant and unsatisfactory and both contain misstatements concerning the history of the subject—but under the following rubrics: algebra, camera obscura, deaf and dumb, earth figure, fortification and siege craft, gravitation, infinitesimal calculus, insurance, logarithms, mathematical tables, Napier, and navigation.

Perhaps I may be pardoned if I mention more specifically three of the names. There is Simon Stevin. Cantor styles him a Dutch mathematician, but says his claims to fame are varied. He invented a horseless carriage which worked, he was first to solve some problems regarding polyhedra, he proved the law of equilibrium on an inclined plane, he discovered the hydrostatic paradox, he explained the tides by the moon, he devised new forms of fortification, was many times public officer, a soldier and statesman, and the first to introduce decimals. Yet he thought it well worth while, in 1602, to write an extended treatise on bookkeeping for the express purpose of training his royal pupil, the Prince of Orange.

There was Charles Hutton, a colliery boy, who became teacher of mathematics at eighteen and later professor at the royal academy at Woolwich, fellow and foreign secretary of the Royal Society (three others in the brief list were also fellows of that distinguished body,) perhaps most famous for his computation of the density of the earth, an achievement recognized by Laplace and said by various competent critics to show ingenious and important methods, which can hardly be improved upon, author too, of a work on conic sections said by Montucla to be a model of precision and clarity, receiver of the Copley medal for his paper on gunpowder, and doctor of laws of Edinburgh. And yet this man, who could weigh the earth as in a balance, condescended to write a text-book on bookkeeping, a subject which many think worthy the attention only of writing masters and proprietors of business colleges.

There was Robert Hamilton, who after some years' experience as a banker, betook himself to teaching, and was professor first of natural philosophy and later of mathematics at Aberdeen; famed, however, more as an economist, for it was he who exposed the economic fallacies of Pitt's policy of the sinking fund. Yet this man, banker, merchant, mathematician, capable of confuting England's master statesman, thought it not beneath his dignity also to write on bookkeeping.

Two Later Writers

I have limited this survey to writers before 1800. I will mention only two persons since then. Augustus De Morgan, whose eminence needs no description, was so far interested in bookkeeping that one of the best elementary books ever written on the subject acknowledges that it is based on the suggestions of De Morgan. And finally Arthur Cayley, who thirty years ago turned aside from his duties as professor of mathematics at Cambridge long enough to write a most excellent book, entitled "The Principles of Double-Entry Bookkeeping."

I have cited illustrious men who have written on bookkeeping rather than illustrious writers on bookkeeping. I did this merely to establish the argument that bookkeeping is a subject worthy the attention of men of ability—not to be relegated to the ordinary business college.

But not all who have attempted to write on the subject have succeeded. He may, like Grammateus, stand high as a mathematician, and yet, as a writer on bookkeeping "deserve no praise beyond that of being the first German who ventured to write on that diffi-

cult subject," producing a book, which Row Fogo says is "so confused that it is extremely improbable that he himself knew much about what he was attempting to teach." He may, like Cardan, show originality and genious in science, yet as a writer on bookkeeping be worse than banal. He may, like Collins, hold an honorable position in the Royal Society, yet produce a work on bookkeeping which receives no particular mention by the historian of the subject. He may, like Hamilton, deserve the encomium of McCullough, that he succeeded in the impossible task of opening the mind of the British public on an economic question, and yet have the "Encyclopedia Britannica" say that his work on bookkeeping is now forgotten. A man of distinction may write on bookkeeping; his work in that line is not necessarily distinguished. Would it be fair to say that it takes a peculiar genius to make a success of that subject?

The third presumptive evidence of respectability is that one performs some important service in the world. Can this be said of accounting? Perhaps this can best be answered by showing that bookkeeping appeared, not as a chance phenomenon, but distinctly in response to a world need. This is true not only of the days of Paciolo, but, as I hope to show, of that more important, almost present-day, revival.

It is not without significance that bookkeeping appeared at the end of the fifteenth century, nor that its birthplace was in the Italian republics. We all know of the marvelous awakening of that period, and particularly of the sudden expansion of commerce. Sieveking, one of the few historians who has paid attention to the subject, says that bookkeeping arose as a direct result of the establishment of partnerships on a large scale, a feature of the expanding commerce.

Dozed for Centuries

But bookkeeping dozed for several centuries, and it was not until just about four hundred years after Paciolo's book, that a startling awakening took place. New works in unheard-of abundance and of a new quality began to appear, and again the universities seriously undertook instruction in a subject which had fallen into academic disrepute.

Why this new prominence in a subject taught before 1500? The answer is so obvious that I offend by explanation. The end of the nineteenth, even more than the end of the fifteenth century, was marked by a most extraordinary expansion of business. Then was the period of the organization of the great corporations (ordinarily called trusts), a prenomenon common to America, England and Germany. Then came that new appearance, the billion-dollar corporation, and just then—not a curious coincidence but a necessary response—accountants woke up. Garcke and Fells started the list of works on cost accounts. Pixley first and then Dicksee began their voluminous writings dealing with the more refined problems of corporation accounts, England chartered the Institute of Chartered Accountants, New York set the example, since followed by every American state, of granting the title of "certified public accountant," the adding machine was invented, logarithms were placed beside the ledger, books were written, conventions were held, accounting was.

In part the new significance of accounting is due to subdivision of ownership and the severance of ownership and control so characteristic of the corporate form of business organization. If the substitution of a small partnership for the individual trader called for improvement in bookkeeping methods, how much more was improvement needed when the partnership was displaced by the corporation with its owners numbered by the tens of thousands.

But still more significant has been the great investment of fixed capital characteristic of modern production and made possible by the organization of corporations. The use of fixed capital on a large scale increases incalculably the difficulty of determining the profits earned in any given year. Paciolo made no serious effort to do this. Business in his day was a congeries of disconnected ventures. A ship went here, a caravan there, a joint venture was undertaken with Messrs. Juan Antonio in French wool, and a flyer was taken in "ginger michini." As these ventures fell in, the profit gained in the completed transaction was ascertained, somewhat roughly, it is true, but fairly satisfactory. But no attempt was made to deal with unfinished operations.

But today business is a continuum. Machinery serves for many years, the factory building stands for a generation, the railroad is built to last forever. The industrial process is made up of a never-ending stream of raw materials, goods in process and finished commodities. Expenses are incurred in common and not like the expenses of a caravan solely in connection with one parcel of goods. But man is strangely agricultural in his tradition, even though society has become industrial. Time was when the recurring cycle of the year was of immense significance to him, for seed-time and harvest each came in connection with the course of the earth around the sun. And man still thinks that he must reckon results in terms of the accidental period involved in such a circuit. We demand to know how much a concern makes in a year. We must know, because the reciprocal rights of preferred and common stockholders may be altogether changed depending on whether profit is to be attributed to the month of December or to the following January. We must know in order to satisfy the demands of the income tax collector. And so accountants are asked to perform the hopeless task of taking this economic continuum, of chopping it up into arbitrary and meaningless lengths called a year and apportioning to each such year a proper part of the cost of a building which will last fifty years, of a machine which will be used for twenty years, of a blast furnace which will last ten, and of a stock of coal bought in December which will all be consumed before spring again appears.

Progress Seems Slow

Progress in the science seems slow. There stand out, however, two contributions of present-day accountants, one of practical, the other of theoretical importance. The first, made by America, consists of innumerable little devices for saving work in the handling of great masses of figures. Cumbersome and needless forms, surviving as tradition from the past centuries in England, and still more on the continent, have been discarded in America and new forms have been introduced by which results can be obtained with less labor. The other contribution has been the attempt to ascertain the exact cost of producing objects or parts of objects or for carrying on processes in continuous manufacture. Manufacturers now must know not only what it costs to make a machine but what is the cost of each separate wheel, pinion and screw in that machine; what is the cost not merely of a yard of cloth, but or carding, of roving, of spinning, of weaving, of dyeing, of finishing, of selling that yard of cloth. This has been the characteristic scientific contribution of recent years.

Progress is being made. What better evidence is there than that even lawyers and courts are coming to appreciate that there are such things as accounting principles? No longer is it possible for the supreme court of the United States to declare that "the public . . . rarely even take into account the depreciation of the building in which the business is carried on."[3] Never again, I believe, will the supreme court of California repeat the statement regarding depreciation:[4] "The theory is . . . that a sum should be set aside to be handed to the stockholders upon the sad occasion of the company's demise, as an alleviating salve to their sorrow, but such a thing is all wrong. The theory can not be tolerated for a moment that such a fund is to be stowed away to make glad the hearts of the stockholders."

I have tried to remove the stigma attached to accounting by showing that in its origin it is respectable, nay even academic; that despite its present disrepute it has from time to time attracted the attention of men of unquestioned intellectual attainment; that it justifies itself in that it has arisen to meet a social need.

[3] Eyster v. Centennial Board of Finance, 94 U. S. 503.
[4] San Diego Water Co. v. San Diego, 118 Cal. 556.

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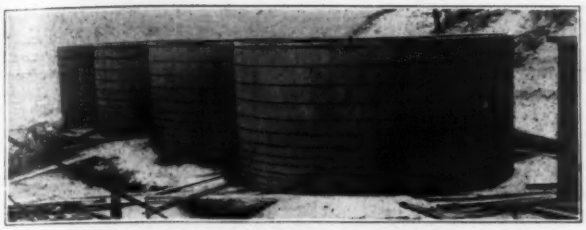

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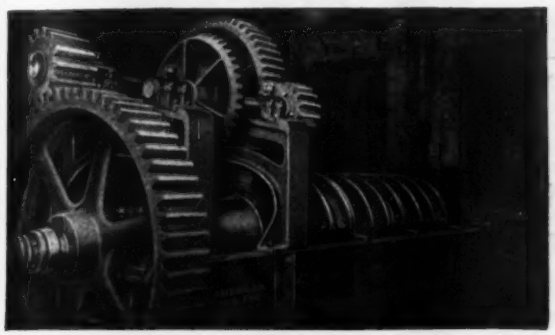

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Gilbert Paper Company, by same, 52 rolls, 169 bls.
Martin & Bechtold, Stuttgart, Bremen, 20 cs.
C. Steiner, by same, 18 cs.
Japan Paper Company, Colombo, Genoa, 49 cs.
S. Safier, Inc., Pr. Roosevelt, Bremen, 2,404 rolls.

RAGS, BAGGINGS, ETC.

Castle & Overton, Chicago, Havre, 73 bls. rags, 157 bls. bagging.
Katzenstein & Keene, Inc., by same, 77 bls. bagging.
E. J. Keller Company, Inc., by same, 83 bls. bagging.
E. J. Keller Company, Inc., Naples Maru, Hamburg, 215 bls. bagging, 85 bls. rags.
Guaranty Trust Company, by same, 162 bls. rags.
Guaranty Trust Company, Wells City, Bristol, 385 bls. rags.
New York Trust Company, by same, 513 bls. rags.
New York Trust Company, Marengo, Newcastle, 364 bls. rags.
Whaling Waste Products Company, Marengo, Hull, 338 bls. rags.
Waste Material Trading Corporation, by same, 10 bls. rags.
W. Schall & Co., G. Florio, Leghorn, 80 bls. cotton waste.
Royal Waste Manufacturing Company, Angela, Genoa, 13 bls. cotton waste.
Equitable Trust Company, Angela, Barcelona, 155 bls cotton waste.
State Bank, Angela, Leghorn, 161 bls. rags.
Leshner Paper Stock Company, by same, 164 bls. rags.
Leshner Paper Stock Company, Vesuvia, Leghorn, 36 bls. paper stock.
Leshner Paper Stock Company, Spain Maru, Leghorn, 72 bls. rags.
State Bank, by same, 193 bls. rags.
E. J. Keller Company, Inc., by same, 145 bls. rags.
E. J. Keller Company, Inc., Schodack, Rotterdam, 68 bls. rags.
A. N. Fenton, Inc., by same, 678 bls. rags.
A. N. Fenton, Inc., N. Amsterdam, Rotterdam, 154 bls. rags.
E. J. Keller Company, Inc., by same, 76 bls. rags.
S. Berkenstein & Sons, by same, 193 bls. bagging.
S. Berkenstein & Sons, Indep. Hall, Havre, 497 bls. rags.
P. Berlowitz, by same, 203 bls. rags.
E. W. Dutton, Inc., by same, 76 bls. rags.
Katzenstein & Keene, Inc., by same, 155 bls. rags.
Katzenstein & Keene, Inc., Zarembo, St. Nazaire, 137 bls. rags.
Atterbury Brothers, Inc., by same, 110 bls. rags.
P. Berlowitz, by same, 368 bls. rags.
Goldman, Sachs & Co., by same, 80 bls. rags.
Brown Brothers & Co., Providence, Marseilles, 200 bls. rags.
Katzenstein & Keene, Inc., Laura, Naples, 49 bls. rags.
R. Blank, Pr. Roosevelt, Bremen, 42 bls. rags.
Guaranty Trust Company, by same, 191 bls. rags.

(*Continued on page 58*)

READY FOR DELIVERY

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CONTENTS

PAPER AND PULP MILLS

All the Paper, Wood Pulp and Chemical Fibre Mills in the United States, Canada, Cuba, Mexico and South America, geographically arranged, with the names of officers; a complete statement of mill equipment; kind of power used, product of mills, and total production per 24 hours.

MILLS CLASSIFIED ACCORDING TO PRODUCTS

All the mills making the same kinds of paper, boards or pulp are brought together under headings descriptive of their products.

PAPER STOCK AND RAGS CONSUMED BY THE MILLS. (NEW SECTION THIS YEAR)

Gives a list of the grades of paper stock and rags consumed by each of the more important mills in the United States and Canada, together with the names of the purchasing agents of these materials.

MAKERS OF PAPER SPECIALTIES

Giving the names of concerns that convert paper to special purposes.

PAPER DEALERS

Wholesale paper houses with indicating marks telling whether the business is done through stores or from warehouse or mill direct; large concerns selling paper as a side line are also included.

PULP, RAG AND PAPER STOCK DEALERS

Names of houses dealing in rags, old papers, pulp, etc., including importers.

CONVERTERS OF PAPER

Included under this heading are those concerns that turn out the following products: Glazed Papers, Coated Papers and Boards, Waxed and Parchment Papers, Toilet Papers, Saturators of Roofing Stock, Paper Bags, Paper Boxes, Envelopes, Pads and Tablets, Tags, Wallpapers, etc.; also a list of Twine Manufacturers.

WHOLESALE AND RETAIL STATIONERS

Leading Stationers and others handling stationery in the United States, Canada, Cuba, Porto Rico and the Philippine Islands. The list printed is considered the most complete and most accurate published.

WATERMARKS AND BRANDS

All the leading titles used in the American Paper Trade are included.

WHO'S WHO IN THE PAPER INDUSTRY

This list includes all the prominent mill officials, together with their connections.

TRADE ASSOCIATIONS, STATISTICAL INFORMATION AND ADVERTISEMENTS

the latter comprising a most complete guide to the sources of supply for machinery and Raw Materials used in the industry.

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Imports and Exports of Paper and Paper Stock

(Continued from page 56)

Guaranty Trust Company, Darian, Liverpool, 144 bls. rags.
Katzenstein & Keene, Inc., Mt. Clinton, Hamburg, 136 bls. rags, 124 bls. old cottons, 41 bls. bagging.
American Exchange National Bank, by same, 67 bls. rags.
Union National Bank, by same, 110 bls. rags.
Chase National Bank, Assyria, Glasgow, 114 bls. rags.
A. Searle, by same, 204 bls. bagging.
National City Bank, by same, 47 bls. rags.
Chase National Bank, Bay State, Dundee, 33 bls. paper stock.
American Exchange National Bank, Bay State, Leith, 157 bls. rags.
Waste Material Trading Corporation, by same, 109 bls. rags.

OLD ROPE

E. J. Keller Company, Inc., Veendam, Rotterdam, 156 coils.
Brown Brothers & Co., Bay State, Leith, 54 coils.
Brown Brothers & Co., N. Amsterdam, Rotterdam, 52 coils.
Brown Brothers & Co., Mt. Clintin, Hamburg, 93 coils.
Brown Brothers & Co., Wells City, Bristol, 500 coils.
Brown Brothers & Co., Marengo, Hull, 58 coils, 43 bls.
Brown Brothers & Co., Marengo, Newcastle, 592 coils.
Anglo South American Trust Company, Spain Maru, Genoa, 457 coils.
Levison & Co., Schodack, Rotterdam, 27 coils.
Castle & Overton, Antonia, London, 20 bls.

WOOD PULP

E. M. Sergeant & Co., Stockholm, Gothenburg, 254 bls. sulphite pulp.
Johaneson, Wales & Sparre, Inc., by same, 280 bls. sulphite pulp.
Castle & Overton, by same, 250 bls. chemical pulp.
Hudson Trading Company, by same, 375 bls. wood pulp.
Guaranty Trust Company, Stavangerfjord, Kristiania, 1,286 bls. chemical pulp.
Mechanics & Metals National Bank, by same, 1,500 bls. wood pulp.
Mechanics & Metals National Bank, Idefjord, Kristiania, 1,500 bls. wood pulp.
Guaranty Trust Company, by same, 5,504 bls. wood pulp.
E. M. Sergeant & Co., by same, 200 bls. sulphate pulp.
E. J. Keller Company, Inc., Stuttgart, Trondhjem, 1,500 bls. wood pulp.
E. J. Keller Company, Inc., Pr. Rocsevelt, Bremen, 1,500 bls. wood pulp.
Atterbury Brothers, Inc., Laura, Trieste, 600 bls. wood pulp.
M. Gottesman & Co., Inc., by same, 1,500 bls. wood pulp.
Tidewater Papermills Company, Barnholm, Liverpool, N. S., 12,482 bls. wood pulp.

WOOD FLOUR

A. Kramer & Co., Mt. Clinton, Hamburg, 400 bags, 20,830 ks.
B. L. Soberski, Stockholm, Gothenburg, 2,380 bags.

CASEIN

Atterbury Brothers, Inc., Pan American, Buenos Aires, 700 bags.
Kalbfleisch Corporation, by same, 2,501 bags.
National City Bank, Bonheur, Buenos Aires, 750 bags.
National City Bank, Steel Engineer, Buenos Aires, 250 bags.

CHINA CLAY

C. T. Wilson Company, Inc., Wells City, Bristol, 657 bags, 50 casks = 25 tons.
Bankers Trust Company, by same, 400 bags.
C. D. Wagner & Co., Inc., Sagoporack, Fowey, 25 bags = 2 tons 3 cwt.
Cooper & Cooper, by same, 70 bags = 6 tons 15 cwt.
Pickfords Colonial, Inc., by same, 1,240 bags = 122 tons 14 cwt.; 249 casks = 124 tons 10 cwt.; bulk, 2,256 tons 6 cwt.

LOS ANGELES IMPORTS

WEEK ENDING APRIL 12, 1924

J. N. Robinson & Co., S. Dollar, Kobe, 5 cs. paper.
D. M. Hicks & Co., by same, 200 bls. rags.

IN TRANSIT TO CANADA

WEEK ENDING APRIL 12, 1924

Kalbfleisch Corp., Pan American, Buenos Aires, 917 bags casein.

NEW ORLEANS IMPORTS

WEEK ENDING APRIL 12, 1924

Castle & Overton, Stuttgart, Bremen, 1,650 bls. wood pulp.
Castle & Overton, Ostende, Havre, 1,253 bls. rags.
Castle & Overton, by same, 100 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING APRIL 12, 1924

G. M. Graves Company, Sagoporack, London, 61 bls. rags.
D. J. Murphy, Maine, London, 128 bls. rags.
Brown Bros. & Co., by same, 193 bls. rags.
Philadelphia National Bank, by same, 393 bls. rags.
Castle & Overton, Naples, Maru, Hamburg, 66 bls. rags.
New York Trust Company, by same, 56 bls. rags.
E. J. Keller Company, Inc., Indep. Hall, Havre, 33 bls. rags.
Salomon Bros. & Co., by same, 19 bls. rags.
Castle & Overton, by same, 164 bls. rags.
Katzenstein & Keene, Inc., by same, 46 bls. rags.
McKenzie & Foster, Indep. Hall, Dunkirk, 108 bls. rags.
Castle & Overton, by same, 283 bls. rags.
E. J. Keller Company, Inc., by same, 87 bls. rags.
E. J. Keller Company, Inc., Segundo, Leghorn, 135 bls. rags.
E. J. Keller Company, Inc., Segundo, Genoa, 169 bls. cotton waste.
E. J. Keller Company, Inc., Angela, Genoa, 179 bls. cotton waste.
E. J. Keller Company, Inc., Zarembo, Bordeaux, 149 bls. rags.
Brown Bros. & Co., by same, 527 bls. rags.
Katzenstein & Keene, Inc., by same, 325 bls. rags.
Katzenstein & Keene, Inc., L. Hemsoth, Hamburg, 22 bls. rags.
Katzenstein & Keene, Inc., C. of Eureka, Leghorn, 49 lbs. paper stock.
New York Trust Company, by same, 22 bls. paper stock.
Brown Bros. Company, Bay State, Leith, 73 bls. rags.
J. A. Steer, Darian, Manchester, 135 bls. rags.
Castle & Overton, by same, 73 bls. rags.
C. J. Welch & Sons Co., by same, 34 bls. rags.
McBlaine & Co., by same, 126 bls. new cutt ngs.
J. A. Manning Company, by same, 64 bls. bagging.
Equitable Trust Company, by same, 84 bls. bagging.
True & McClelland, by same, 22 bls. cotton waste.
D. J. Murphy, Dollar, Kobe, 100 bls. cotton waste.
O'Neill Brothers, by same, 147 bls. cotton waste.
Castle & Overton, Naperian, Antwerp, 43 bls. rags.
Castle & Overton, Northwestern Miller, England, 46 bls. waste paper.
True & McClelland, Zarembo, Bordeaux, 67 coils old rope.

BOSTON IMPORTS

WEEK ENDING APRIL 12, 1924

New England Waste Co., G. Florio, Leghorn, 45 bls. cotton waste.
E. J. Keller Company, Inc., West Cherow, Rotterdam, 40 bls. rags.
Train Smith Company, Maryland, London, 309 bls. waste paper.
G. M. Graves Company, by same, 103 bls. rags.
Grave & Co., Inc., by same, 30 bls. rags.
M. O'Meara Company, by same, 12 bls. rags.
G. M. Graves Company, West Lake, Hull, 131 bls. rags.
G. M. Graves Company, by same, 392 bls. waste paper.
Alex Brown Sons, by same, 121 bls. rags.
Train Smith Company, Delilian, Manchester, 83 bls. rags.
E. Butterworth & Co., Inc., by same, 15 bls. rags.
G. M. Graves Company, by same, 293 bls. rags.
G. M. Graves Company, Burgerdyk, Rotterdam, 732 bls. rags.
Guaranty Trust Company, by same, 309 bls. rags.
Philadelphia National Bank, by same, 41 bls. rags.
Alex Brown Sons, by same, 841 bls. rags.
Mechanics & Metals National Bank, West Celina, Manchester, 40 bls. rags.
Alex Brown Sons, by same, 1,891 bls. rags.
Brown Shipley & Co., by same, 591 bls. rags.
E. Butterworth & Co., Inc., Westerner, Rotterdam, 116 bls. rags.
Alex Brown Sons, by same, 1,483 bls. rags.
E. F. Russ & Co., Delilian, Manchester, 228 bags hide cuttings.
International Purchasing Company, Maryland, London, 547 coils old rope.
International Purchasing Company, West Lake, Hull, 126 coils old rope.
International Purchasing Company, Delilian, Manchester, 184 coils old rope.
Union National Bank, Burgerdyk, Rotterdam, 86 coils old rope.

Fire at Lawless Paper Plant

ROCHESTER, N. Y., April 12, 1924.—About $75,000 damage was done to the plant of the Lawless Paper Company, 81 and 93 North Water street, by a spectacular blaze which occurred there last Tuesday morning. The fire was discovered on the third floor of the building.

Joe Frisbee, star salesman for the Bradener-Smith Paper Company, Chicago, devotes his attention outside business hours to something other than paper selling. He has a Boston terrier called "Frisbee's Shief" which last week took the first prize in his class at the annual dog show staged in the First Regiment Armory. Joe is receiving congratulations from his many friends both in and

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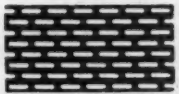

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Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

Stocks	BID	ASKED
Abitibi Power and Paper Company, Ltd.	56½	56¾
Abitibi Power and Paper Company, Ltd, Pfd.	100½	104
American Writing Paper Company, Pfd.	1½	1¾
Brompton Pulp and Paper Company, Ltd.	35½	35¾
Donnacona Paper Company, Ltd.	53	55
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	34¾	35½
International Paper Company, Pfd.	65½	66½
Laurentide Company, Ltd.	87	87½
Price Brothers	39¾	40
St. Maurice Paper Co., Ltd.	87¾	88¾
Smith (Howard) Paper Mills, Ltd.	52	53
Spanish River Pulp and Paper Mills, Ltd.	96⅞	97
Spanish River Pulp and Paper Mills, Pfd.	108¾	109
Union Bag and Paper Corp.	51	52
Wayagamack Pulp and Paper Company, Ltd.	36	40
West Virginia Pulp and Paper Company	52	54

Bonds	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934	99	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940	92	95
Abitibi Power and Paper Company, Ltd., Con. 8s 1931	102½	103½
Belgo Canadian Paper Company, 1st 6s 1943	93¼	94¼
Brown Company Serial 6s	97	98
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6½s, Series "A," 1944	93	93½
Donnacona Paper Company, Ltd., 1st 6s 1940	97	98
Eddy Paper Company, 1st 7½s 1931	97½	99½
Gair (Robert) Company, 1st 7s 1937	96	98
International Paper Company, 1st and Ref. 5s (Series "B") 1947	83½	84
Mattagami Pulp and Paper Company, 1st 6s 1937	60	63
Mattagami Pulp and Paper Company, 1st 7s 1949	20	25
Oswego Falls Corporation, 1st 8s 1942	100¾	101¾
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947	97	100
Parker, Young Company, 1st 6½s 1944	95½	97½
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938	96½	98
Peshtigo Paper Company, 1st 7s (Series "B") 1942	92	94½
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943	97	98½
Provincial Paper Mills, Ltd., 1st 6s 1940	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929	18	24
Riordon Pulp and Paper Company, Ltd., 6s 1942	71½	73
Riordon Company, Ltd., 1st and Ref. 8s 1940	67	69
River Raisin Paper Company, 1st 8s 1936	103½	105
Smith (Howard) Paper Mills, Ltd., 6s 1934	99¾	101
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941	93	96
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931	99	100
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	102¾	103¼
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper

F. o. b. Mill	
Ledgers	11.00 @38.00
Bonds	9.00 @45.00
Writings—	
Extra Superfine	14.00 @30.00
Superfine	14.00 @30.00
Tub Sized	10.00 @15.00
Engine Sized	8.00 @11.00
News—f. o. b. Mill—	
Rolls, contract	3.75 @ 4.00
Rolls, transit	3.75 @ 4.25
Sheets	4.25 @ 4.50
Side Runs	3.50 @ 4.15
Book, Cased—f. o. b. Mill—	
S. & S. C.	7.25 @ 9.00
M. F.	7.10 @ 8.85
Coated and Enamel	9.00 @14.00
Lithograph	9.00 @14.00
Tissues—f. o. b. Mill—	
White No. 1	.75 @ .76
White No. 2	.70 @ .80
Colored	1.05 @ 1.90
Anti-Tarnish	1.35 @ 1.90
Kraft	.85 @ 1.10
Manila	.75 @ .80
Kraft—f. o. b. Mill—	
No. 1 Domestic	5.75 @ 6.25
No. 2 Domestic	5.15 @ 5.75
Imported	4.75 @ 5.20
Manila—	
No. 1 Jute	7.50 @ 9.00
No. 2 Jute	7.75 @ 8.50
No. 1 Wood	4.75 @ 5.25
No. 2 Wood	4.00 @ 4.50
Butchers	4.25 @ 4.75
Fibre Papers—	
No. 1 Fibre	5.50 @ 5.75
No. 2 Fibre	5.00 @ 5.25
Common Bogus	3.50 @ —
S. Screening	3.25 @ 3.75
Card Middles	4.00 @ 5.00

Boards—per ton—		
News	55.00	@60.00
Straw	61.00	@63.00
Chip	38.00	@45.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip	65.00	@75.00
Wood Pulp	70.00	@75.00
Container	70.00	@80.00
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	12.00	@15.00
Bleached, basis 20 lbs.	14.00	@17.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	29.00	@34.00
(F. o. b. Mill)		
No. 1 Domestic	29.00	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.25
Easy Bleaching	2.50	@ 2.75
No. 1 strong unbleached	2.90	@ 3.10
No. 2 strong unbleached	2.20	@ 2.40
No. 1 Kraft	2.50	@ 3.00
Sulphate—		
Bleached	3.40	@ 3.80
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	3.40	@ 4.15
Easy Bleaching Sulphite	2.30	@ 2.90
News Sulphite	2.20	@ 2.40
Mitscherlich	2.30	@ 2.90
Kraft (Domestic)	2.20	@ 2.70
Soda Bleached	3.90	@ 4.10

Domestic Rags

New

Prices to Mill, f. o. b. N. Y.		
Shirt Cuttings—		
New White, No. 1	13.00	@13.50
New White, No. 2	6.25	@ 6.75
Silesias, No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	5.26	@ 6.15
Fancy	6.25	@ 6.75
Blue Overall	7.15	@ 8.15
New Blue	5.00	@ 5.50
New Black Soft	4.65	@ 5.15
New Light Seconds	2.75	@ 3.00
O. D. Khaki Cuttings	4.04	@ 4.15
Men's Corduroy	3.65	@ 4.00
New Canvas	6.40	@ 7.00
New Black Mixed	2.50	@ 2.75
White, No. 1—		
Repacked	6.25	@ 6.75
Miscellaneous	5.50	@ 5.75
White, No. 2—		
Repacked	4.00	@ 4.25
Miscellaneous	3.50	@ 3.65
St. Soiled, White	2.80	@ 3.00
Thirds and Blues—		
Repacked	3.00	@ 3.25
Miscellaneous	2.35	@ 2.45
Black Stockings	3.00	@ 3.25
Roofing Rags—		
Cloth Strippings	2.30	@ 2.40
No. 1	2.15	@ 2.25
No. 2	1.35	@ 1.45
No. 3	1.30	@ 1.40
No. 4	1.30	@ 1.40
No. 5A	1.55	@ 1.65

Foreign Rags

New Light Silesias	7.00	@ 7.75
Light Flannelettes	8.00	@ 8.25
Unbl'chd Cottons	9.00	@ 9.50
New White Cuttings	10.00	@11.50
New Light Oxfords	7.25	@ 7.75
New Light Prints	6.75	@ 7.25
New Mixed Cuttings	2.50	@ 2.75
New Dark Cuttings	2.00	@ 2.25
No. 1 White Linens	9.00	@10.00
No. 2 White Linens	7.00	@ 8.00
No. 3 White Linens	6.00	@ 6.50
No. 4 White Linens	4.00	@ 5.00
Old Extra Light Prints	3.15	@ 3.25
Ord. Light Prints	2.75	@ 3.00
Med. Light Prints	2.40	@ 2.50
Dutch Blue Cotton	3.25	@ 3.50
German Blue Cottons	3.00	@ 3.20
Ger. Blue Linens	3.00	@ 3.25
Checks and Blues	2.00	@ 2.15
Dark Cottons	2.00	@ 2.10
Shoppery	1.75	@ 1.85
French Blues	3.25	@ 3.50

Bagging

Prices to Mill F. o. b. N. Y.		
Gunny No. 1—		
Foreign	1.30	@ 1.40
Domestic	1.20	@ 1.30
Wool, Tares, light	1.30	@ 1.40
Wool, Tares, heavy	1.40	@ 1.50
Bright Bagging	1.10	@ 1.20
Sound Bagging	.90	@ 1.00
Manila Rope—		
Foreign	6.25	@ 6.50
Domestic	6.50	@ 6.75
New Bu. Cut	2.15	@ 2.25
Hessian Juts Threads—		
Foreign	2.00	@ 2.25
Domestic	2.00	@ 2.10

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.30	@ .38
No. 2	.29	@ .31
No. 3	.34	@ .36
India, No. 6 basis—		
Light	.17	@ .18
Dark	.16	@ .17
B. C., 18 basis	.41	@ .42
A. B. Italian, 18 Basis	.51	@ .61
Finished Jute—		
Dark, 18 basis	.29	@ .30
Light, 18 basis	.26	@ .27
Jute Wrapping, 3-6 Ply—		
No. 1	.20	@ .23
No. 2	.18	@ .20
Tube Rope—		
4-ply and larger	.15	@ .17
Fine Tube Yarn—		
5-ply and larger	.19	@ .21
4-ply	.20	@ .22
3-ply	.20	@ .22
Unfinished India—		
Basis	.16	@ .17
Paper Makers' Twine Balls	.09	@ .11
Box Twine, 2-3 ply	.14	@ .15
Jute Rope	.15	@ .16
Amer. Hemp, 6	.30	@ .32
Sisal Hay Rope—		
No. 1 Basis	.14	@ .16
No. 2 Basis	.10	@ .12
Sisal Lath Yarn—		
No. 1	.14	@ .15
No. 2	.11	@ .13
Manila Rope	.18	@ .19

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.90	@ 4.10
Hard, White, No. 2	3.10	@ 3.30
Soft, White, No. 1	3.00	@ 3.20
Flat Stock—		
Stitches	1.70	@ 1.80
Over Issue Mag.	1.70	@ 1.80
Solid Flat Book	1.50	@ 1.60
Crumbled No. 1	1.25	@ 1.35
Solid Book Ledger	2.15	@ 2.25
Ledger Stock	1.90	@ 2.05
New B. B. Chips	.65	@ .80
Manilas—		
New Env. Cut	2.45	@ 2.55
New Cut No. 1	1.75	@ 2.00
Extra No. 1 old	1.30	@ 1.40
Print	1.10	@ 1.25
Container Board	.90	@ 1.00
Bogus Wrapper	.90	@ 1.00
Old Krafts Machine compressed bales	2.15	@ 2.25
News—		
No. 1 White News	1.90	@ 2.10
Strictly Overissue	1.00	@ 1.15
Strictly Folded	.80	@ .90
No. 1 Mixed Paper	.55	@ .70
Common Paper	.50	@ .60

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill		
All Rag Bond	35 @	40
No. 1 Rag Bond	30 @	35
No. 2 Rag Bond	14 @	25
Water Marked Sulphite	9 @	12
Sulphite Bond	7½ @	10¾
Sulphite Ledger	9½ @	12
Superfine Writing	18 @	24
No. 1 Fine Writing	14 @	18
No. 2 Fine Writing	12 @	14
No. 3 Fine Writing	9 @	12
No. 1 M. F. Book	5¾ @	7½
No. 1 S. & S. C. Book	6¼ @	7¾
Coated Book	8 @	10
Coated Label	8 @	10
News—Rolls, mill	3¾ @	4½
News—Sheets, mill	4 @	4¾
No. 1 Manila	5 @	6
No. 1 Fibre	5¼ @	5¾
No. 2 Manila	4¾ @	5
Butchers' Manila	4½ @	4¾
No. 1 Kraft	5½ @	6½
No. 2 Kraft	5½ @	6¼
Wood Tag Boards	4½ @	6
Screenings	3 @	—

Boards, per ton—		
Plain Chip	$37.50	@40.00
Solid news	40.00	@42.50
Manila Line Chip	47.50	@50.00
Container Lined—		
85 Test	55.00	@57.50
100 Test	—	@65.00

Old Papers

F. o. b. Chicago

Shavings—		
No. 1 Hard White	3.25	@ 3.35
White Envel. Cuttings	3.25	@ 3.35
No. 1 Soft Shav.	2.50	@ 2.00
No. 1 Mixed	1.25	@ 1.35
No. 2 Mixed	1.15	@ 1.25
Ledgers and Writings	1.60	@ 1.70
Solid Books	1.50	@ 1.55
No. 1 Books, Light	1.25	@ 1.30

Blanks	2.20	@	2.25
Ex. No. 1 Manila	2.30	@	2.40
Manila Envelope Cuttings	2.45	@	2.50
No. 1 Manilas	1.10	@	1.15
Folded News (over issue)	1.10	@	1.15
Old Newspapers—			
No. 1	.90	@	1.00
No. 2	.80	@	.85
Mixed Papers—			
No. 1	.80	@	.85
No. 2	.70	@	.75
Straw Clippings	.90	@	1.00
Binders' Clippings	.90	@	1.00
Kraft	2.20	@	2.30
New Kraft Cuts	2.50	@	—
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	40.00	@	—
No. 2	38.00	@	—
No. 3	36.00	@	—
No. 4	36.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.09½	@	.53
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.09¼	@	.12¾
Book, S. S. & C.	.11	@	.15
Book, Coated	.14¼	@	.20
Coated Lithograph.	.10	@	.15
Label	.10	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.10
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.08½
No. 1 Kraft	—	@	.09½
Common Bogus	.03½	@	.04
Straw Board	65.00	@	70.00
News Board	60.00	@	65.00
Chip Board	55.00	@	60.00
Wood Pulp Board. (Carload Lots)	2.75	@	3.00
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply.	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.45	@	—
Domestic	1.50	@	—
Manila Rope	6.00	@	6.50
Sisal Rope	1.25	@	—
Mixed Rope	1.30	@	—
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy.	2.00	@	2.13
Mixed Strings	1.30	@	—
No. 1, New Lt. Burlap	2.00	@	—
New Burlap Cuttings	2.00	@	2.25

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	4.25	@	4.40
No. 2, Hard White	3.50	@	3.75
No. 1 Soft White	3.25	@	3.50
No. 2 Soft White	2.15	@	2.25
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.25	@	2.50
Writing Paper	2.00	@	2.25
No. 1 Books, heavy	2.00	@	2.25
No. 2 Books, light	1.40	@	1.50
No. 1 New Manila	2.75	@	3.00
No. 1 Old Manila	1.75	@	2.00
Container Manila	1.25	@	1.50
Old Kraft	2.25	@	2.50
Overissue News	1.25	@	1.35
Old Newspaper	.90	@	1.00
No. 1 Mixed Paper	1.00	@	1.10
Common Paper	.80	@	.90
Straw Board, Chip	1.00	@	1.10
Binders Bd., Chip.	1.00	@	1.10

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.13	@	—
New White, No. 2	.07	@	—
Silesias, No. 1	.08¼	@	.08½
New Unbleached.	.11	@	.11½
Washable	.05	@	.05½
Fancy	.06½	@	.06¾
Cottons—according to grades—			
Blue Overall	.08¾	@	.09
New Blue	.03¾	@	.04
New Black Soft.	.06	@	.06¼
New Light Seconds	.03½	@	.03¾
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.10½	@	.11
New Black Mixed	.05¼	@	.05½

Old

White, No. 1—			
Repacked	3.75	@	3.75
Miscellaneous	.05½	@	.05¾
White, No. 2—			
Repacked	.05	@	.05¼
Miscellaneous	.04¾	@	—
Thirds and Blues—			
Repacked	3.75	@	—
Miscellaneous	3.25	@	—
Black Stockings	4.25	@	4.75
Roofing Stock—			
No. 1	2.35	@	2.45
No. 2	2.15	@	2.25
No. 3	2.05	@	2.15
No. 4	2.05	@	2.15
No. 5A	1.75	@	—
B			nominal
C			nominal

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.09	@	.63
Ledgers	.09	@	.55
Writings	.08½	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C.	.07¼	@	.12
Books, M. F.	.07¼	@	.09½
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.00	@	4.50
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06½	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	40.00	@	45.00
News, Vat Lined	40.00	@	45.00
Wood, Vat Lined	50.00	@	52.50
Filled News Board.	40.00	@	47.50
Solid News Board, No. 4 Finish	60.00	@	—
S. Manila Chip	60.00	@	65.00
Pat. Coated News	77.50	@	87.50

Old Papers

Mixed paper	.57½	@	.62½
Folded news	.70	@	.75
Soft white shavings	2.75	@	2.90
Hard white shavings.	3.60	@	4.00
Kraft paper	1.90	@	2.05
Ledger and letter	2.15	@	2.35
No. 1 books and magazines	1.45	@	1.62½
Manila paper No. 1	1.70	@	1.75
Solid ledgers	2.50	@	2.75
No. 1 roofing rags.	2.05	@	2.15
No. 2 roofing rags.	2.00	@	2.05
No. 3 gunny bagging	1.40	@	—
No. 4 Brussels and hard back carpets	1.20	@	1.30
No. 5 roofing rags—			
A's	1.25	@	1.35
B's	—	@	—
C's	—	@	—
No. 6 City dump rags	—	@	—
Manila rope, domestic	6	@	6½
Mixed strings	1.20	@	1.40
Jute strings	1.30	@	1.40

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite).	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rap	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$34.00	@	36.00
Sulphite easy bleaching	55.00	@	60.00
Sulphite news grade	52.50	@	55.00
Sulphite, bleached.	75.00	@	80.00
Sulphite	60.00	@	65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut.	4.00	@	—
Soft White Book shavings	3.20	@	3.30
White Blk. News	2.15	@	2.20
Book and Ledger—			
Flat Magazine and Book Stock(old)	1.35	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	1.85	@	—
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut.	—	@	2.00
Printed Manilas.	1.55	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	—	@	.75

Domestic Rags—

Price to mills, f. o. b. Toronto

	Per lb.		
No. 1 White shirt cuttings	.12¼	@	.13
No. 2 White shirt cuttings	.06½	@	.07
Fancy shirt cuttings	.06¼	@	.06½
No. 1 Old Whites		@	
Third and blues.	.03¼	@	.03½
	Per cwt.		
Black stockings	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.06¼	@	.06½
No. 2	1.55	@	—

Canadian Forestry Association

The first meeting of the newly-elected 1924 Board of Directors of the Canadian Forestry Association was held in Montreal during the week. Robson Black, the secretary, reported on his visit to British Columbia in connection with the opening of a branch office of the association and the appointment of a resident manager. It is reported that British Columbia is fast awakening to the importance of forest conservation. With this meeting the association entered upon the last year of a quarter century of active work in the interests of forestation in Canada. It has enjoyed uninterruptedly steady growth through all that time and now has a membership of well over 15,500 and is the largest forestry association of the world. Its persistent propaganda for forest protection has, it is said, resulted in a tremendous awakening of interest amongst boards of trade, business men's clubs, and other powerful organizations as well as throughout the country generally. It was reported that the Canadian Pacific Railway is this year entering upon a more active tree planting campaign than ever before. Along a total of over forty miles of track, young trees will be planted to act as snow breaks in winter. They are mostly cedar, spruce and red and Scotch pine and they will take about seven years to reach maturity. The company is also paying a good deal of attention to tree planting as a means of securing sliding river banks, willows being most largely used for this purpose.

Matthias & Freeman Enlarge Quarters

Enlarged quarters have been secured by the Matthias & Freeman Company, Philadelphia, through the addition of another 1,000 square feet of space to the store and the construction of a mezzanine balcony in the present location at 117 N. 7th street. The additional warehousing space adjoins the rear of the main store floor and the balcony has been erected around the upper portion of the 7th street frontage. The additional facilities will enable the firm to take care of small order shipments which heretofore were not handled with the speed necessary owing to congested quarters.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, APRIL 16, 1924.

Now that the paper convention has passed, business is beginning to settle back into the hundreum existence of every day trading. The market moved no faster than it did the week before but a firm undertone gave promise of better business in the near future. The industry appears to be working in the right direction although things are somewhat slower than it was thought they would be a year ago.

The various meetings and the papers that were read at them last week seemed to clear the air a good deal. Everyone got his particular grudge off his chest. There was a good deal of plain speaking about market conditions which cannot but have the effect of clearing the air. Every possible angle of the problem of imports and most of the serious domestic difficulties came in for their hours of serious discussion.

One thing seemed apparent taking a long view of the whole convention and that was the fact that the paper industry in some of its divisions has been a distinct disappointment during the past year. The over production in many of the lines was frankly discussed and remedies suggested. All of these things have helped to place the whole paper business on a basis of firmer understanding than ever before and it is certain that the advantages of this will become plainer between now and next summer.

There is general feeling that prices are stabilizing along with the demand and this, of course, will mean a much better business. Many of the men in the industry are very much worried over the import situation and steps are being taken to remedy the evils which are being charged up to those bringing paper into this country from foreign countries. This has given new hope to many manufacturers who felt that they were losing in the fight with imported papers. Most of the mills are still running at full time and manufacturers say that they are getting enough orders to maintain this condition. The general condition of business is fair with every prospect of further improvement.

News print is still moving faster than most of the other commodities on the market. Rolls are in good demand and sheets and side runs are not far behind. Manufacturers say that they have nearly all of the business they can handle and they are very optimistic about the immediate future.

Book paper is just about the same as it was last week with little change in either one direction or the other. The mills are running pretty generally at a hundred per cent, but there are some exceptions to this. There still seems to be a little over production in a few mills, but it is reported that this is being gradually taken up. Fine papers are also in fairly good demand with an increasing call for some of the finer grades. Many of the bonds appear to be a trifle more popular than they were a few weeks ago.

Kraft is still lagging somewhat behind the other papers, but it, too, is improving. Dealers in coarse paper and in tissue say that there are a few mills that are upsetting the market by making offerings below the market price. One coarse paper man reports that some of the manufacturers in the west are offering kraft at a figure below which it is possible for them to make any money.

Board is in about the same condition that it has been for some time past. It is moving along in a fairly stable manner with no movement of any great significance in either direction. The manufacturers and dealers think that this is a good sign and they say that they have hopes that this will be the forerunner of a long and stable period in this part of the market.

Mechanical Pulp

Mechanical pulp is moving along with news print. The demand is good in all quarters and the mills have plenty of business. It is not surprising that this condition exists since news print mills have been making a steady demand on the grinders for months past that has kept them going at full speed.

Chemical Pulp

There have been no real changes in the chemical pulp situation during the week. It is possible to get some of the grades still at quite low prices, but others are picking up somewhat. The mills are showing considerable more interest than they were a week or two ago and dealers say that within the past few days they have been getting more inquiries about future shipments.

Old Rope and Bagging

Old rope is still in fairly good demand with small change in the prices except in a few isolated cases where dealers reduce a trifle to get a quick turnover. Bagging is also in pretty good demand although this is not so good as it was.

Rags

Rags are in fair demand particularly in the cheaper grades. The roofing mills are showing a decided interest in them and buying, while it is not heavy, is good enough to keep the dealers in a reasonably optimistic frame of mind. Importations have been just about the same during the past week.

Waste Paper

Waste paper is also holding up about the same as it has been. The disinclination of some of the buyers to lay in pulp brought a flurry of prosperity to the waste market which sent prices up and did much to keep them there. The dealers say that they are pleased with the condition and they believe that it is going to continue.

Will Resume Law Practice

Homer Benton, secretary of the Northern Paper Mills, Green Bay, Wis., has presented his resignation to Judson G. Rosebush, general manager, to take effect on May 1. Mr. Benton will return to Appleton to resume his law practice which he gave up when he joined the Rosebush organization at the Patten Paper Company as legal advisor. When Mr. Rosebush acquired an interest in the Northern Paper Mills and was made its general manager, Mr. Benton was transferred to Green Bay as secretary of the company.

Shipments of pulpwood, which have been exceedingly large for several weeks, are expected to decrease the latter part of this month. Hundrds of carloads of wood have come into the Fox river valley.

About 35,000 cords of wood will be in the yards of the Northern Paper Mills during the year.

Redshaw Box Factory Burned

Fire on March 28 did damage of $75,000 at the paper box factory of S. G. Redshaw company of Ansonia, Conn. The building which was a small two-story structure was completely destroyed. The fire occurred at night and the Derby fire department sent apparatus to assist the Ansonia department but the fire had gained so great headway when discovered that it was impossible to save the building. The officials have been unable to ascertain the cause of the fire.

Rotarians Inspect Mills

J. H. Delbridge, general manager of the Marinette and Menominee Paper Company, Marinette, Wis., entertained the Marinette and Menominee Rotary clubs at luncheon in the dining room at the company's main office at the Park mills last week. A splendid program was provided after which Mr. Delbridge escorted the Rotarians through the company's mills.

Filer Fibre Co. to Issue Notes

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., April 14, 1924.—The Filer Fibre Company, Filer City, Mich., has been granted permission to issue $300,000 six per cent debenture notes, of the date of March 1, 1924.

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THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

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Woolen manufacturers since 1856.

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21 EAST 40th STREET, NEW YORK CITY

Importers of Chemical Pulps

BLEACHED and UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden.
Kronstädter Papierstoff — Fabriks Actien — Gesellschaft
Mills at Tucianshy, Sv. Martin

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, APRIL 16, 1924.

The general market for chemicals is somewhat better than it was although there have been no further price changes. Dealers say that the call for many of the commodities that paper manufacturers use from other industries is tending to keep quotations high rather than any great demand from the paper men. These, however, are showing considerably more interest than they were and seem to be getting ready to make more commitments for the future. There is room for improvement still and there does not seem at this time any chance at all of prices getting any lower so it is hard to figure out just why the paper industry is still holding off a little so far as chemicals are concerned.

BLEACHING POWDER.—Bleach has not risen any higher in prices after the change of two weeks ago. There is still a good demand for it and manufacturers say that they are well pleased with the amount of business they are doing. The quotation is now at 3.10 to 3.15 cents on a flat basis at the works.

CAUSTIC SODA.—Caustic has remained just about the same during the past week with no real change in either one direction or the other for some time. The demand is good on the open market although it is not quite up to the expectations of the dealers. The paper industry is showing an inclination to come in for it with more firmness and it is looking toward improvement. The price is still 3.10 to 3.15 cents a pound on a flat basis at the works.

CASEIN.—Although casein has been subject to a good deal of fluctuation during the past few months it seems to have settled down at last to a steady price. It is quoted at from 11 to 12 cents a pound.

CHINA CLAY.—China clay has not been in quite as good demand during the past week as it was before, but still a fair number of orders are going through the market and dealers and importers say that they are satisfied that the dull condition is merely temporary. The price on the imported grades is from $16 to $20 a ton and on the domestic it is from $12 to $15 a ton.

CHLORINE.—There has been no further rise in the price of chlorine for the past week and the demand is continuing strong in the local market. The price is still at 4.50 to 5.00 cents a pound in tanks.

ROSIN.—Rosin fell off a little in price during the past couple of weeks but this movement now seems to have been checked and the dealers say that the present price represents something pretty close to rock bottom. It is now quoted at from $5.75 to $5.85 in 280 pound barrels.

SALTCAKE.—There is no change in the condition in the saltcake market for the past week. It is moving with a fair amount of regularity in the open market although dealers say that the condition might be somewhat better. The price is still at from $20 to $23 a ton.

SODA ASH.—Soda ash is in pretty good demand although there is still some room for improvement, according to reports from the local dealers. The price continues at 1.38 cents a pound on a flat basis.

SULPHATE OF ALUMINA.—Alumina is still in good demand with prices showing signs of stiffening a little after the slight falling off of a few weeks ago. Apparently the buyers are showing a great deal more interest with the commercial grade now at from 1.15 to 1.30 cents while iron free is from 2.10 to 2.25 cents a pound.

V. D. Simons, mill engineer, 39 South LaSalle street, Chicago, has gone to Port Angeles, Wash., to inspect the new sulphite pulp mill of the Washington Pulp and Paper Corporation. This unit was erected under the direction of the Simons organization, having a daily capacity of 150,000 pounds of sulphite pulp.

Schopper Paper Testers at the Show

The Foreign Paper Mills of 72 Duane street, New York, had one of the most interesting exhibits at the Paper Show. All of the Schopper Scientific Paper Testers were on display, and operated and explained by those in charge who were energetic workers.

The Schopper Folding Endurance Testing Instruments created a great deal of interest, as the demand for the Schopper Folding Endurance test is fast becoming recognized by the first authorities as one of the best tests of the wearing endurance of paper. It was shown that some of the best quality rag papers folded a thousand double folds whereas the same weights in a sulphite paper would only fold fifteen or twenty times, thus immediately showing that one sheet was suitable for long life under constant usage whereas the other was suitable for advertising purposes that found their way into the scrap basket in very short order. It was explained that each quality should be used for the right purpose.

The Schopper Rapid Tensile Tester met with great approval on account of its quick action in giving the results of the breaking strength in pounds per ½ inch strip and during the same operation showing the percentage of stretch. Many technical men used this opportunity to check the little instrument with the large Schopper Laboratory Tensile Tester. The results are remarkably equal. Many of these little instruments were sold at the Show.

The Schopper method of tests, both folding and tensile, is based on testing paper in the machine and cross machine directions, which means with and against the grain. The uniformity or felting factor, which—without question—shows how well a sheet of paper is made, has always been recognized as the most important reason for testing paper. One hundred per cent is impossible, yet 75 per cent is possible, although many papers are way down to 35 per cent and some cylinder tissues are only 5 per cent. Example: 20 pounds breaking strength per inch with the grain and 15 pounds breaking strength against the grain—20 into 15 equals 75 per cent uniformity. Specifying merely rag content, without the uniformity factor, is not sufficient to maintain standards.

There was a large display of the Schopper Scales, as the Schopper line of scales meets every purpose, such as—for weighing full sheets giving a direct reading of the weight per ream of any size used; Small Piece Scales which give the weight of paper by weighing a small piece in the size of 4 x 4 inches; Board Scales which show the actual weight of one sheet and the number of sheets contained in a 50 pound bundle. A new scale was exhibited showing the basic weight per 1,000 square inches, which is in accordance with the new movement on foot to establish a standard weight in the paper industry by 1,000 square inches instead of the old method based on various trade sizes that now exist.

Heavy Rains Handicap Holyoke Mills

HOLYOKE, Mass., April 15, 1924.—Heavy rains raised the river to about seven feet over the dam last week since which time the waters have been slowly subsiding. The paper mills on the third level were forced either to run on part power or in some cases electrical power was bought of the city or the Holyoke Water Power Company. By the last of the week the river will probably be normal again.

The Gill Division of the American Writing Paper Company which has been down some time started up its big paper machine, the largest in the valley, this week.

Great Lakes Paper Co. to Build Soon

FORT WILLIAM, Ont., April 14, 1924.—President J. H. Black of the Great Lakes Paper Company, who is in the city, stated that plans were almost completed for the two million dollar paper mill that his company will build here, and that work would be begun this summer.

The pulp mill is almost ready for operation.